SIEMENS

FS 920

Farbfernsehgeräte
Color TV
Televisore a colori

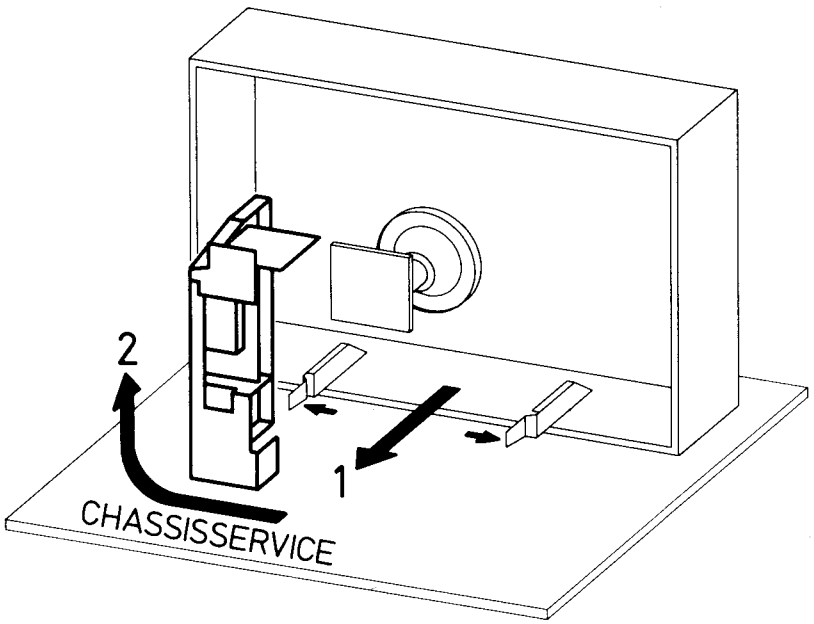
Kundendienstschrift für Grundchassis
Service manual for basis chassis
Istruzioni d'assistenza il telaio

351-0

Bedienteil · Control unit · Sezione di comando

TP 31

Servicestellung
Service position
Posizione di servizio



MC-Service

Diese Geräte tragen das VDE-Zeichen und erfüllen daher die einschlägigen VDE-Bestimmungen. Um die Sicherheit der Geräte zu erhalten, müssen die mit einem solchen Symbol in den Kundendienst-Unterlagen gekennzeichneten Bauelemente durch Originalteile ersetzt werden.

Wichtig ist auch, daß Bauelemente in gleicher Lage wieder eingesetzt werden.

Achtung! Nach optimalen Einstellungen im Bildröhrenwerk bilden Bildröhre und Ablenksystem eine festverbundene Einheit.
Es erlischt die Bildröhren-Garantie, wenn
- die Lage des Ablenksystems oder der Korrekturmagnete verändert wird.
- Befestigungsmuttern oder Versiegelungen gelöst werden.

These sets are provided with the VDE sign, thus fulfilling the VDE regulations. In order to maintain the safety of the sets, the components marked with a suchlike symbol in the service manuals must be replaced by original parts.

It is also important that components are placed in the same position.

Note! After optimum adjustments in the picture tube factory, picture tube and deflection yoke represent a firmly connected unit.
Picture tube warranty is expiring in case
- the position of the deflection yoke or the correction magnets is changed,
- mounting nuts or sealings are loosened.

Gli apparecchi sono contrassegnati con il marchio VDE e quindi corrispondono a queste norme. Per garantire la sicurezza degli apparecchi, i componenti contrassegnati con il simbolo riportato a destra e rilevabile dalle istruzioni di manutenzione, devono essere sostituiti con componenti originali.
E'importante che i componenti vengano inseriti di nuovo nella loro posizione originale.

Attenzione: Dopo la regolazione ottimale effettuata in sede di fabbricazione il cinescopio ed il giogo di deflessione formano un sistema unico. E' quind vietato:
- spostare i componenti i posti sul collo del cinescopio.
- allentare le viti di tali componenti.

Ausgabe 725/824
Issue
Edizione

Änderungen vorbehalten
Modifications reserved
Con riserva di modifiche

Ident. Nr. 53 5200

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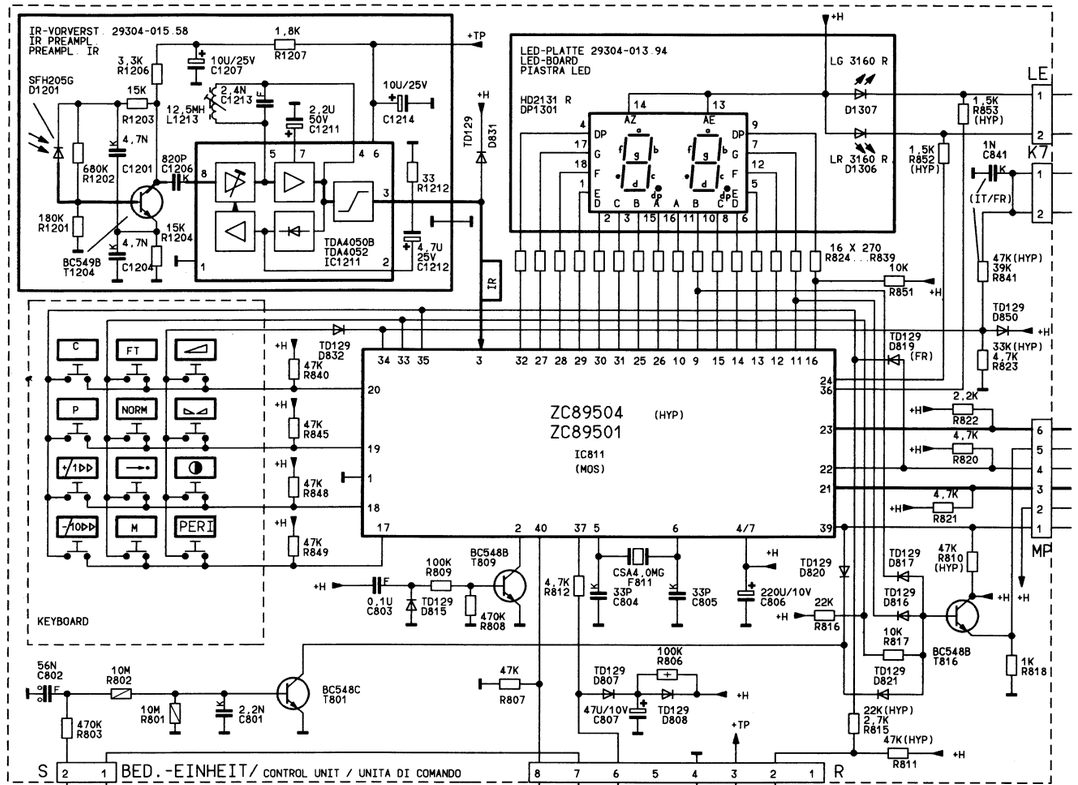
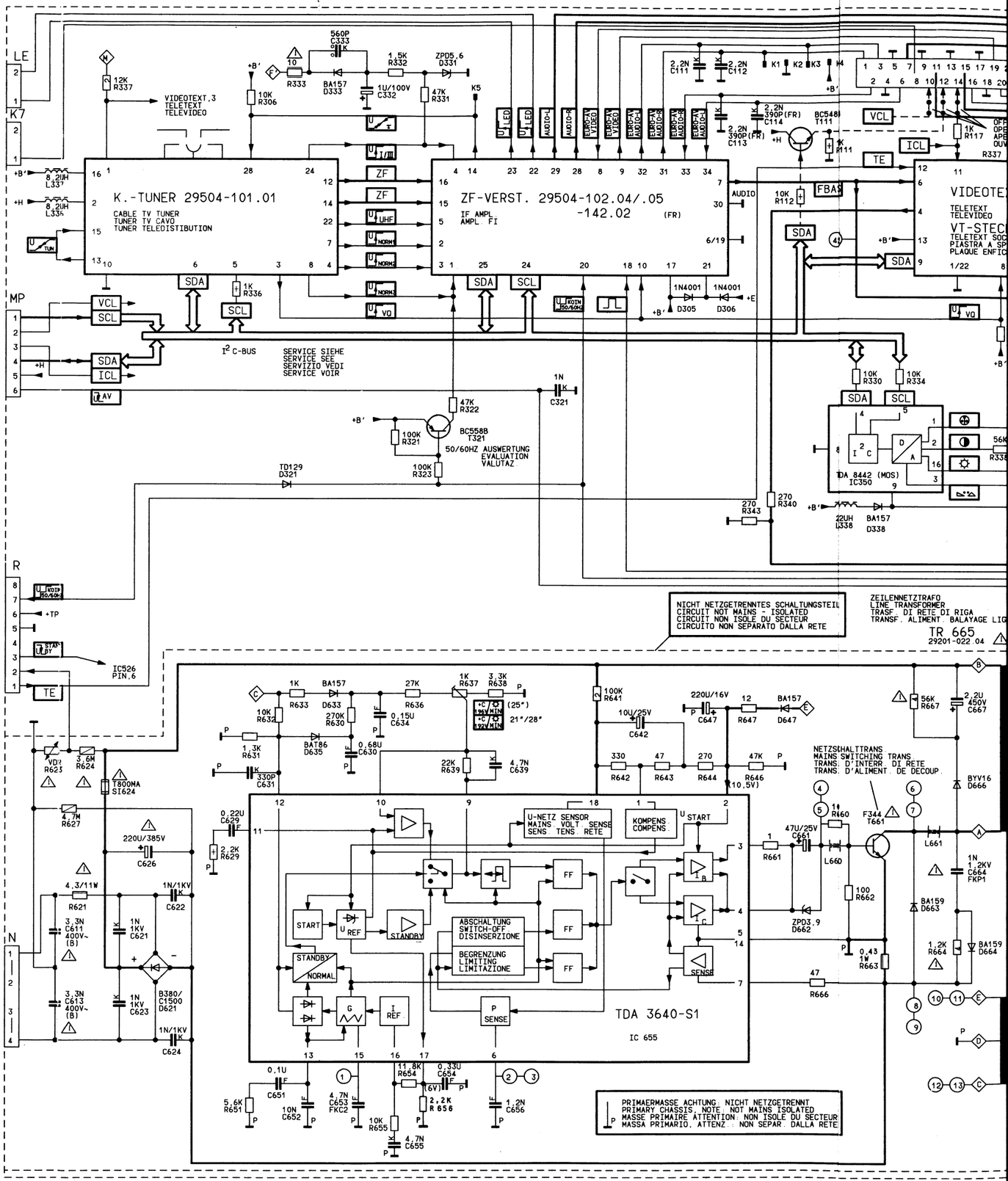
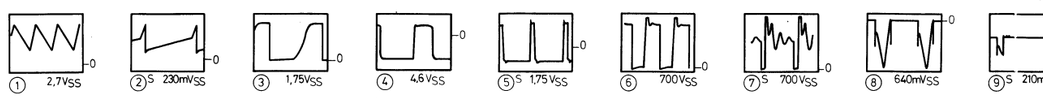

IR-VORVERST. 29304-015.58
IR PREAMPL.
PREAMPL. IR
SFH205G D1201
3,3K R1206
1,8K R1207
10U/25V C1207
15K R1203
12,5MH L1213
2,4N C1213
2,2U 50V C1211
10U/25V C1214
4,7N C1201
680K R1202
820P C1206
33 R1212
180K R1201
15K R1204
4,7N C1204
BC549B T1204
TDA4050B
TDA4052
IC1211
4,7U 25V C1212
TD129 D831
+TP
+H
LED-PLATTE 29304-013.94
LED-BOARD
PIASTRA LED
HD2131 R
DP1301
LG 3160 R
D1307
LR 3160 R
D1306
1,5K R853 (HYP)
1N C841
(IT/FR)
K7
LE
LR
16 X 270 R824...R839
10K R851
47K(HYP) 39K R841
TD129 D850
33K(HYP) 4,7K R823
TD129 D819 (FR)
2,2K R822
4,7K R820
4,7K R821
47K R810 (HYP)
TD129 D817
TD129 D816
10K R817
TD129 D821
22K(HYP) 2,7K R815
47K(HYP) R811
1K R818
BC548B T816
ZC89504 (HYP)
ZC89501
IC811
(MOS)
MP
TD129 D832
47K R840
47K R845
47K R848
47K R849
C
FT
P
NORM
+/1DD
M
PERI
-/10DD
KEYBOARD
100K R809
BC548B T809
0,1U C803
TD129 D815
470K R808
4,7K R812
CSA4,0MG F811
33P C804
33P C805
220U/10V C806
TD129 D820
22K R816
100K R806
TD129 D807
47U/10V C807
TD129 D808
47K R807
56N C802
10M R802
470K R803
10M R801
2,2N C801
BC548C T801
S 2 1 BED.-EINHEIT/ CONTROL UNIT / UNITA DI COMANDO 8 7 6 5 4 3 2 1 R
TE
START UP
U KOTN 50/60HZ
WISCHER
TEMP CONTACT
CONTATTO TEMP.
ENTMAGNETISIERUNG / DEGAUSSING
SMAGNETIZZAZIONE / DEMAGNETISATION
L609
0,1U C609 MKS4-R 250V~
PTC R609
220-240V~
2X 400UH L600
0,22U C601 MP3 250V~
2X 27MH L601 29500-809.97
T2.5A SI 601
S601
NETZSCHALTERPL. 29304-065.38
MAINS SWITCH BOARD
PIASTRA INTERR. DI RETE
BEI VERS.B AUF BED.-EINHEIT
FITTED ON CONTROL UNIT ON B VERS.
NELA VERS.B SULL'UNITA DI COMANDO


LE
K7
MP
R
N
TE
12K R337
VIDEOTEXT.3
TELETEXT
TELEVIDEO
10K R306
560P C333
1,5K R332
ZPD5,6 D331
BA157 D333
1U/100V C332
47K R331
K5
2,2N C111
2,2N C112
2,2N 390P(FR) C113
2,2N 390P(FR) C114
BC548 T111
VCL
ICL
TE
1K R117
4K R111
K1 K2 K3 K4
8,2UH L337
8,2UH L338
K.-TUNER 29504-101.01
CABLE TV TUNER
TUNER TV CAVO
TUNER TELEDISTIBUTION
ZF-VERST. 29504-102.04/.05
-142.02 (FR)
IF AMPL.
AMPL. FI
ZF
UHF
NORM
VQ
AUDIO
10K R112
FBAS
SDA
SCL
1K R336
I² C-BUS
SERVICE SIEHE
SERVICE SEE
SERVICIO VEDI
SERVICE VOIR
1N4001 D305
1N4001 D306
VIDEOTE
TELETEXT
TELEVIDEO
VT-STEC
1/22
10K R330
10K R334
I² C
D A
TDA 8442 (MOS)
IC350
47K R322
100K R321
BC558B T321
50/60HZ AUSWERTUNG
EVALUATION
VALUTAZ.
100K R323
1N C321
TD129 D321
270 R343
270 R340
22UH L338
BA157 D338
NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS - ISOLATED
CIRCUIT NON ISOLE DU SECTEUR
CIRCUITO NON SEPARATO DALLA RETE
ZEILENNETZTRAFO
LINE TRANSFORMER
TRASF. DI RETE DI RIGA
TRANSF. ALIMENT. BALAYAGE LIG
TR 665
29201-022.04
IC526 PIN.6
VD1 R623
3,6M R624
T800MA SI624
4,7M R627
220U/385V C626
4,3/11W R621
3,3N C611 400V~ (B)
3,3N C613 400V~ (B)
1N 1KV C621
1N 1KV C623
B380/ C1500 D621
1N/1KV C622
1N/1KV C624
1K BA157 D633 R633
27K R636
1K R637
3,3K R638
(25*)
21"/28"
270K R630
0,15U C634
10K R632
BAT86 D635
0,68U C630
1,3K R631
330P C631
22K R639
4,7N C639
100K R641
10U/25V C642
220U/16V C647
12 BA157 D647
R647
330 R642
47 R643
270 R644
47K P R646 (10,5V)
NETZSCHALTTRANS
MAINS SWITCHING TRANS.
TRANS. D'INTERR. DI RETE
TRANS. D'ALIMENT. DE DECOUP.
56K R667
2,2U 450V C667
BYV16 D666
F344 T661
47U/25V C661
R661
L660
L661
100 R662
ZPD3,9 D662
1N 1,2KV C664 FKP1
BA159 D663
1,2K R664
BA159 D664
0,43 1W R663
47 R666
U-NETZ SENSOR
MAINS VOLT SENSE
SENS. TENS. RETE
KOMPENS
COMPENS
U START
START
U REF
STANDBY
ABSCHALTUNG
SWITCH-OFF
DISINSERZIONE
BEGRENZUNG
LIMITING
LIMITAZIONE
STANDBY NORMAL
G
I REF
P SENSE
SENSE
FF
TDA 3640-S1
IC 655
0,22U C629
2,2K R629
0,1U C651
5,6K R651
4,7N C653 FKC2
10N C652
11,8K R654
0,33U C654 (6V)
2,2K R656
10K R655
4,7N C655
1,2N C656
PRIMAERMASSE ACHTUNG. NICHT NETZGETRENNT
PRIMARY CHASSIS. NOTE NOT MAINS ISOLATED
MASSE PRIMAIRE ATTENTION: NON ISOLE DU SECTEUR
MASSA PRIMARIO. ATTENZ.: NON SEPAR. DALLA RETE

MC-Service


① 2,7VSS
② S 230mVSS
③ 1,75VSS
④ 4,6VSS
⑤ S 1,75VSS
⑥ 700VSS
⑦ S 700VSS
⑧ 640mVSS
⑨ S 210mVSS
⑩ S 37VSS
⑪ 42VSS
⑫ 50VSS
⑬ S 6,5VSS
⑭ 80VSS
⑮ 80VSS 200V
⑯ 17VSS 155V
⑰ S 38VSS
⑱ 61VSS
⑲ S 5VSS

ZF-VERST. 29504-102.04/.05
-142.02 (FR)
IF AMPL
AMPL. FI

VIDEOTEXT 29504-108.04
TELETEXT
TELEVIDEO
VT-STECKERPL. -108.92
TELETEXT SOCKET BOARD
PIASTRA A SPINA TELEVDEO
PLAQUE ENFICHABLE ANTIOPE

FARB/RGB 29504-105.23 CTI
-145.21 (FR)
COLOUR / RGB
COLORE / RVB
DECODEUR / RVB

TDA 8442 (MOS)
IC350

TDA 3640-S1
IC 655

TDA 8140
IC 526

TDA 8145
IC 555

ABLENKUNG 29504-007.09
-007.19 MULTI
DEFLECTION
DEFLESSIONE
BASES DE TEMPS

EURO-AV-BUCHSE
EURO-AV SOCKET
PRESA EURO-AV
EMBASE PERI TV

OFFEN B IT/FR
OPEN IN IT/FR VERS
APERTO NELLA VERS. IT/FR
OUVERT POUR VERS. IT/FR

ZUR BED.-EINHEIT/NF-BUCHSENPL
TO CONTROL UNIT/AF SOCKET BOARD
ALL' UNITA DI COMANDO/PIASTRA PRESE BF
VERS L'UNITE DE COMMANDE/C.I. PRISES BF

NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS - ISOLATED
CIRCUIT NON ISOLE DU SECTEUR
CIRCUITO NON SEPARATO DALLA RETE

PRIMAERMASSE ACHTUNG: NICHT NETZGETRENNT
PRIMARY CHASSIS, NOTE: NOT MAINS ISOLATED
MASSE PRIMAIRE ATTENTION: NON ISOLE DU SECTEUR
MASSA PRIMARIO, ATTENZ.: NON SEPAR. DALLA RETE

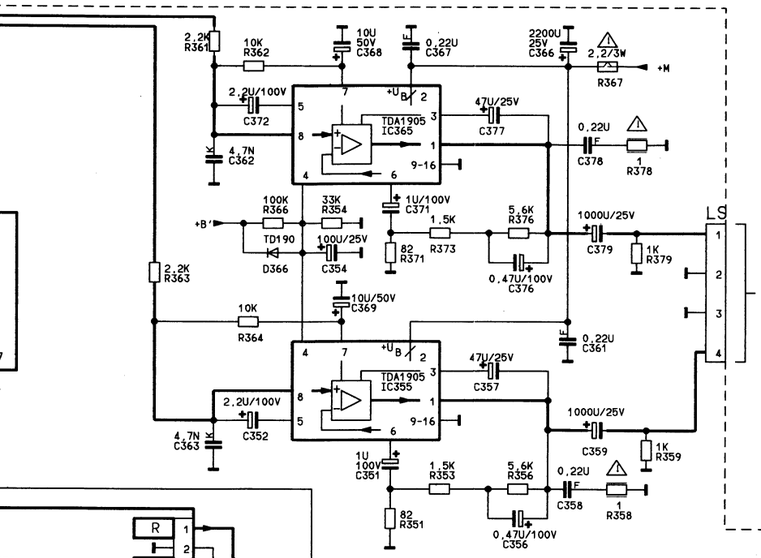
ZEILENNETZTRAFO
LINE TRANSFORMER
TRASF. DI RETE DI RIGA
TRANSF. ALIMENT. BALAYAGE LIG.
TR 665
29201-022.04

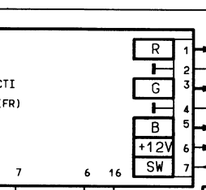
NETZSCHALTTRANS
MAINS SWITCHING TRANS.
TRANS. D'INTERR. DI RETE
TRANS. D'ALIMENT. DE DECOUP.

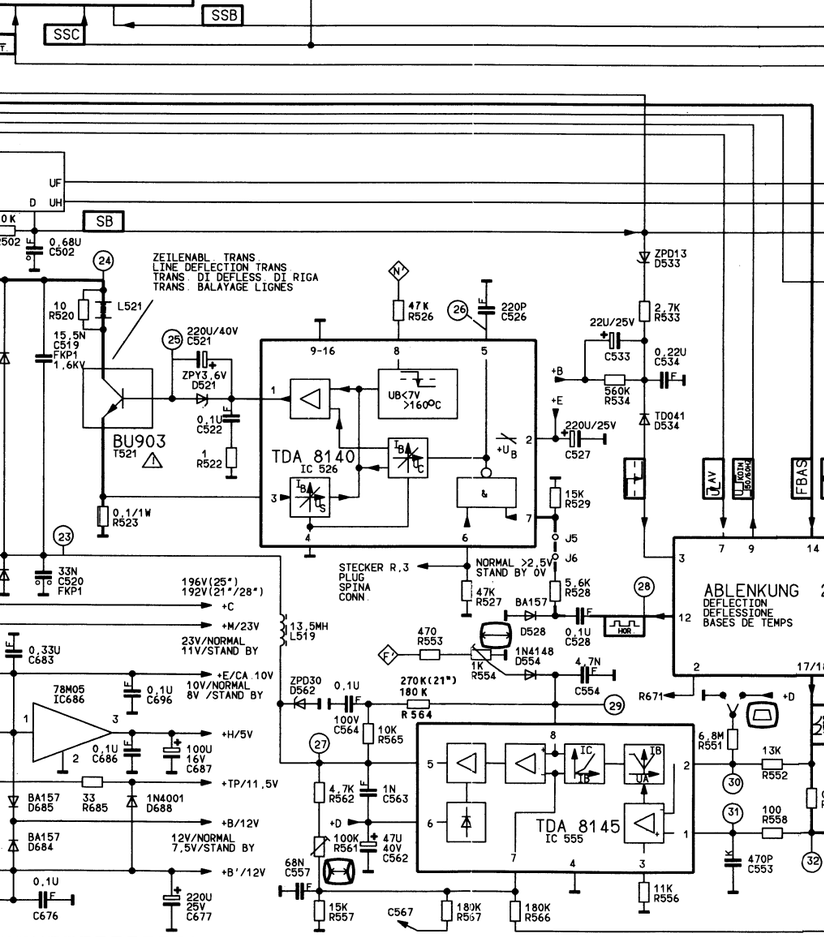
ZEILENABL. TRANS
LINE DEFLECTION TRANS
TRANS. DI DEFLESS. DI RIGA
TRANS. BALAYAGE LIGNES

SIEME
CHASSIS 29701
TELAIO

MC-Service







SIEMENS CUC 351-0

CHASSIS	29701-048.03	CTI (25"/28")
TELAIO	-048.17	CTI/VT (25"/28")
	-048.23	CTI/FR (25"/28")
	-048.34	CTI/FR (21")

VERS. A		VERS. B	
GERAETE MIT SYMM. GEHAEUSE		GERAETE MIT WUERFEL GEHAEUSE	
SETS WITH SYMM. CABINET		SETS WITH CUBE CABINET	
APP. CON MOBILE SIMMETRICO		APP. CON MOBILEA A CUBO	
APPAR. AVEC BOITIER SYMMETR.		APPAR. AVEC BOITIER CUBIQUE	
FS 937 9/2	(9.25353-01)	FS 928 9	(9.25352-01)
FS 927 9	(9.25354-01)	FS 928 3	(9.25352-02)
FS 937 3	(9.25353-02)	FS 928 0	(9.25352-11)
FS 927 3	(9.25354-02)	FS 920 0	(9.25363-11)
FS 927 0	(9.25354-11)		
FS 937 0	(9.25353-11)		

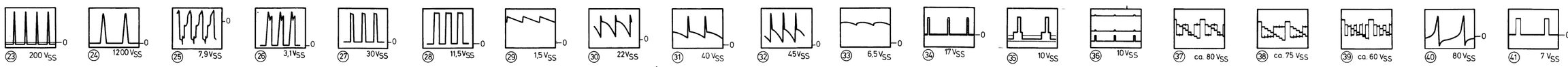
Die mit S gekennzeichneten Oszillogramme sind im Standby-Betrieb aufgenommen.

The oszillogramms marked by S are shown in standby position.

Gli oscillogrammi contrassegnati con la »S« sono stati rilevati nella situazione di attesa.

AENDERUNGEN VORBEHALTEN
SUBJECT TO ALTERATION
MODIFICATIONS RESERVEES
CON RISERVA DI MODIFICA

PRINTED IN GERMANY



Service am I²C-Bus (mit MOTOROLA-Prozessor)

Bei Fehlfunktionen des Gerätes, die nicht auf Netzteil, Hochspannung und Ablenkung zurückzuführen sind, ist der I²C-Bus gemäß Tabelle 1 zu prüfen, bevor weitere Servicearbeiten nach Tabelle 2 durchgeführt werden.

Der µComputer in der Bedieneinheit IC 850 liefert Steuerbefehle für Tuner, ZF-Verstärker Videotext, T 111 (zur EURO-AV-BUCHSE) und IC 350 über den I²C Bus.

Bei Modulwechsel ist das Gerät generell auszuschalten!

Auch in Stellung »Bereitschaft« darf kein Modul gezogen werden! MOS-handling beachten.

Tabelle 1

Messung	Meßwert	Meßpunkt	Mögliche Fehler
+ H	5 V	Pin 4, IC 811	D 682, IC 686, IC 811
4 MHz Takt Reset	4 MHz, 3 V_{ss} 4 V_{ss} nur im Einschaltmoment	Pin 6, IC 850 Pin 2	F 811, IC 811 T 809, D 815
I²C Bus	5 V_{ss}	Pin 21, 23, IC 811	Die I²C-Bus-Daten sind auch ohne TP-Bedienung oder Keyboardeingabe vorhanden. Bei fehlenden Daten: Die Leitungen SDA und SCL auftrennen. Sind dann die I²C-Bus-Daten vorhanden, liegt eine Überlastung des I²C-Bus vor. **Fehlerursache:** Tuner, ZF-Verstärker, Videotext, T 111 und IC 350.

Tabelle 2

Mögliche Fehlerarten des Gesamtgerätes

Fehler	Mögliche Ursache	Meßwert	Meßpunkt
Keine Frequenzabstimmung	Tuner (Speicher, PLL)	+ 0,2–30 V	Pin 13, 15
	+ B' + H Ⓜ	+ 12 V + 5 V ca. + 4,5 V	Tuner Pin 16 Tuner Pin 2 Tuner Pin 1
Keine Bedienfunktion	+ H, IC 811	+ 5 V	IC 811 Pin 4
LED falsche Anzeige	IC 811		
	F 811	4 MHz, 3 V	IC 811 Pin 6
Kein Ton	Keine Koinzidenzkennung (ZF-Verstärker	>3 V	IC 811 Pin 35
	IC 365/IC 355	+ M/ca. 23 V	IC 365/355 Pin 2
Keine Programmschaltung mit TP	IR-Vorverstärker	IR-Signal 5 V_{ss}	IC 811 Pin 3
Keine Analogwerte für Helligkeit Kontrast Farbkontrast Tint	I²C-Bus, IC 350 D/A-Converter " " "	5 V_{ss} 1-3 V 2-4 V 2-4 V 0,5-11,5 V	IC 350 Pin 4, 5 Farb/RGB Pin 10 Farb/RGB Pin 11 Farb/RGB Pin 12 Farb/RGB Pin 3
Beim Einschalten mit der Netztaste schaltet das Gerät auf Bereitschaft.	T 801	beim Einschalten kurzzeitig »LOW« (Kollektor)	IC 811 Pin 39
Kein FBAS-Signal	Tuner	ca. 10 V	Tuner Pin 3
	ZF-Verstärker	ca. 10 V	ZF-Verst. Pin 10
	+ B'	+ 12 V	ZF-Verst. Pin 17
Gerät geht nicht in den Betriebszustand – akustisches Schwirren.	C 653 Toleranz zu groß oder defekt	① Tastkopf 1:10	IC 655 Pin 15

Service checks on the I²C bus (with MOTOROLA processor)

If faluts occur in the set which cannot be attributed to the power supply unit, the EHT or the deflection system, the I²C bus should be checked using Table 1 before further service work is carried out using Table 2.

Via the I²C bus the microcomputer in the control unit IC 850 supplies control signals for the tuner, IF, videotext (teletext) T 111 (to the EURO-AV-socket) and IC 350.

Note:

When a module is being changed, the set should be switched off completely. Modules must not be unplugged even in the »standby« mode! Observe MOS handling precautions.

Table 1

Test	Test Figures	Test Point	Possible faults
+ H	5 V	Pin 4, IC 811	D 682, IC 686, IC 811
4 MHz clock Reset	4 MHz, 3 V_{pp} 4 V_{pp} only at moment of switch on	Pin 6, IC 811 Pin 2	F 811, IC 811 T 809, D 815
I²C bus	5 V_{pp}	Pin 21, 23, IC 811	The I²C bus data are present even without input from the remote control or keyboard. If data are absent disconnect the SDA and SCL lines. If data are then present on the I²C bus, the I²C bus is overloaded. Possible faults: Tuner, IF, Videotext (Teletext), T 111 and and IC 350.

Table 2

Possible faults which can occur in any part of the set

Fault	Possible Cause	Test Figure	Test Point
No frequency tuning	Tuner (memory, PLL)	+ 0,2–30 V	Pin 13, 15
	+ B' + H Ⓜ	+ 12 V + 5 V ca. + 4,5 V	Tuner pin 16 Tuner pin 2 Tuner pin 1
No functions appecpted	+ H, IC 811	+ 5 V	IC 811 pin 4
Incorrect LED indication	IC 811		
	F 811	4 MHz, 3 V	IC 811 pin 6
No sound	No coincicence identification (!F)	>3 V	IC 811 pin 35
	IC 365/IC 355	+ M/about 23 V	IC 365/IC 355 pin 2
Programme cannot be change with remote control	IR-preamplifier	IR-signal 5 V_{pp}	IC 811 pin 3
No analog signals for Brightness Contrast Colour contrast Tint	I²C, IC 350 D/A-Converter " " "	5 V_{pp} 1-3 V 2-4 V 2-4 V 0,5-11,5 V	IC 350 Pin 4, 5 Colour/RGB, pin 10 Colour/RGB, pin 11 Colour/RGB, pin 12 Colour/RGB, pin 3
Set switches to standby mode on operation of power button	T 801	Short-time "LOW" on switch-on (collector)	IC 811, pin 39
No CCVS	Tuner	approx. 10 V	Tuner, pin 3
	IF	approx. 10 V	IF, pin 10
	+ B'	+ 12 V	IF, pin 17
Receiver does not go to working order – audible whistle	C 653 Tolerance too large or capacitor defective	① Probe 1:10	IC 655 Pin 15

Service per I²C-Bus (con processore MOTOROLA)

Se l'apparecchio funziona erroneamente e ció non dipende nè dall'alimentatore, nè dall'alta tensione o dalla deflessione, occorre controllare il bus I²C secondo la tabella ; prima di effettuare altri lavori di assistenza come da tabella 2.

Il microcomputer nell'unitá di comando IC 850 fornisce le istruzioni per tuner, FI, televideo, T 111 (alla presa EURO/SCART) e IC 350 attraverso il bus I²C.

Nota:

Spegnere l'apparecchio durante la sostituzione di un modulo! Non togliere il modulo memeno con apparecchio in posizione d'attesa! Fare attenzione alle norme MOS.

Tabella

Misura	Valore di misura	Punto di misura	Possibili guasti
+ H	5 V	Pin 4, IC 811	D 682, IC 686, IC 811
Cadenza 4 MHz Reset	4 MHz, 3 V_{pp} 4 V_{pp} solo all'atto dell'accensione	Pin 6, IC 811 Pin 2	F 811, IC 811 T 809, D 815
Bus I²C	5 V_{pp}	Pin 21, 23, IC 811	I dati nel bus I²C sono presenti anche senza comando da TP o immissione tramite tastiera. Se i dati mancano: interrompere le linee SDA e SCL. Se ora i dati sono presenti, nel bus I²C c'è un sovraccarico. **Possibili cause del guasto:** tuner, FI, televideo, T 111 e IC 350.

Tabella 2

Possibili guasti nell'apparecchio

Guasto	Possibile causa	Valore de misura	Punto di misura
Non é possibile sintonizzare la frequenza	Tuner (memoria, PLL)	+ 0,2–30 V	Pin 13, 15
	+ B' + H Ⓜ	+ 12 V + 5 V ca. + 4,5 V	Tuner Pin 16 Tuner Pin 2 Tuner Pin 1
Nessuna funzione viene accettata	+ H, IC 811	+ 5 V	IC 811 Pin 4
Indicazione LED errata	IC 811		
	F 811	4 MHz, 3 V	IC 811 Pin 6
Manca l'audio	Nessun riconoscimento di coincienza (FI)	>3 V	IC 811 Pin 35
	IC 365/IC 355	+ M/ca. 23 V	IC 365/355 Pin 2
Non viene commutato il programma con TP	Preamplif. IR	Segnale IR 5 V_{pp}	IC 811 Pin 3
Manca il valore analogico per luminosità contrasto contrasto colore tinta	Bus I²C, IC 350 convertitore D/A " " "	5 V_{pp} 1-3 V 2-4 V 2-4 V 0,5-11,5 V	IC 350 Pin 4, 5 Colore/RGB Pin 10 Colore/RGB Pin 11 Colore/RGB Pin 12 Colore/RGB Pin 3
Accendendo con tasto rete l'apparecchio commuta in posizione d'attesa	T 801	All'atto dell'accensione brevemente «LOW» (collettore).	IC 811 Pin 39
Nessun segnale FBAS	Tuner	ca. 10 V	Tuner Pin 3
	FI	ca. 10 V	FI Pin 10
	+ B'	+ 12 V	FI Pin 17
L'apparecchio non va in posizione di funzionamento (ronzio)	C 653, tolleranza troppo grande e difettoso	①,sonda dell' oscillografo 1:10	IC 655 Pin 15

Ⓓ 1. Funktionshinweise ZEILEN-N

Beim Zeilen-Netz-Teil (ZNT) handelt
schaltung und nur einer Netztrennst
große Laständerungen und einen ein

Einschaltvorgang über Netztaste

Der T 661 liegt über die Primärseite d
lenrhythmus gesteuert durch IC 655 (
sorgung und das IC 526.
Sobald IC 850 eingeschwungen ist wi
tende T 521 wird periodisch angesteu
in den Normalbetrieb eingeleitet. Die
an PIN 10, PIN 2 dient zur Spannungs
Bei Stand by (Bereitschaft) wird über
wie beim Einschaltvorgang voll durch
PIN 12 schaltet IC 655 auf Stand by.
Bei Stand by übernimmt nur PIN 2 die

2. Service-Hinweise für ZEILEN-NET

Gerät mit Netztrenntransformator be
Bei Fehlfunktionen des Zeilen-Netz-
1. Kollektor/Emitter T 521 überbrücke
2. Anlaufspannung über R 641 Pin 18 I
3. Startspannung über D 647 Pin 2 IC 6
4. Referenzspannung Pin 17 IC 655 =
5. Oszillatorfrequenz Pin 15 IC 655 =
6. + M = ca. 11 V (stand by)
   + H = 5 V
7. + C = < 12 V (unde
   + B = ca. 7,5 V (stand by)
   + E = 8 V
8. C 626 muß vor Wechsel des IC 655 e
9. Netzteil-Regelbereich: 140-270 V.

ⒼⒷ 1. Short Description of the Line

The line mains supply unit (ZNT) is a
stage circuit and just one mains isola
transformer allows large load variatio

Process on operation of power butt

T 661 is connected to the mains volta
rhythm. The line rhythm produced by
low-level signals and for IC 526. After
(pin 6). The previously continuously
input of IC 655 (pin 12) where the nec
the load-dependent compensation fo
In the stand-by mode, pin 6 of IC 526
full load as is the case on switch-on.
toi the lack of trigger pulses at pin 12.
In the stand-by mode, only pin 2 provi

2. Service Instructions for Line Main

Operate the unit via the mains isolatin
Troubleshooting in case of line mains
1. Short circuit collector/emitter T 52
2. Initial voltage via R 641, pin 18, IC 6
3. Starting voltage via D 647, pin 2, IC
4. Reference voltage, pin 17, IC 655 =
5. Oscillator frequency, pin 15, IC 655
6. + M = 11 V approx. (stand-by)
   + H = 5 V
7. + C = < 12 V (not c
   + B = 7.5 V approx (stand by)
   + E = 8 V
8. Be sure to discharge C 626 before r
9. Mains unit range of adjustment: 14

Ⓘ 1. Breve descrizione dell'alimen

L'alimentatore di riga (ZNT) è un alim
zontale combinato ed un solo punto d
tata per l'avvolgimento, grandi variaz
di IC 526.

Accensione con l'interruttore di rete

T 661 è collegato alla tensione di rete
sto ritmo, su comando di IC 655 (pin
circuitali e di IC 526.
Quando IC 850 è attivo, attraverso T 8
zione, viene ora comandato periodica
di trigger fa commutare l'integrato IC
per la stabilizzazione dell'alimentato
stantemente su HIGH. In questo mo
cuito del circuito di riga e, tramite gli
Questa situazione prevede che solo s

2. Istruzioni di servizio per l'alimenta

Alimentare l'apparecchio con un tras
Se l'alimentatore di riga funziona err
1. Cortocircuitare collettore/emettito
2. Tensione di avviamento, tramite R
3. Tensione di start.
4. Tensione di riferimento, pin 17 IC 6
5. Frequenza dell'oscillatore, pin 15 I
6. + M = ca. 11 V (stand-by)
   + H = 5 V
7. + C = < 12 V
   + B = 7,5 V (corrisponde a stand by)
   + E = 8 V
8. C 626 deve essere scarico prima di
9. Campo di regolazione dell'aliment

Bus (con processore MOTOROLA)

funziona erroneamente e ció non dipende nè dall'alimentatore, nè dall'alta deflessione, occorre controllare il bus I²C secondo la tabella ; prima di effettuare di assistenza come da tabella 2.

r nell'unitá di comando IC 850 fornisce le istruzioni per tuner, FI, televideo, T URO/SCART) e IC 350 attraverso il bus I²C.

recchio durante la sostituzione di un modulo! Non togliere il modulo mem- cchio in posizione d'attesa! Fare attenzione alle norme MOS.

	Valore di misura	Punto di misura	Possibili guasti
	5 V	Pin 4, IC 811	D 682, IC 686, IC 811
z	4 MHz, 3 V_{pp} 4 V_{pp} solo all'atto dell'accensione	Pin 6, IC 811 Pin 2	F 811, IC 811 T 809, D 815
	5 V_{pp}	Pin 21, 23, IC 811	I dati nel bus I²C sono presenti anche senza comando da TP o immissione tramite tastiera. Se i dati mancano: interrompere le linee SDA e SCL. Se ora i dati sono presenti, nel bus I²C c'è un sovraccarico. **Possibili cause del guasto:** tuner, FI, televideo, T 111 e IC 350.

ell'apparecchio

	Possibile causa	Valore de misura	Punto di misura
	Tuner (memoria, PLL)	+0,2–30 V	Pin 13, 15
	+ B' + H Ⓜ	+ 12 V + 5 V ca. + 4,5 V	Tuner Pin 16 Tuner Pin 2 Tuner Pin 1
e vie-	+ H, IC 811	+ 5 V	IC 811 Pin 4
erra-	IC 811		
	F 811	4 MHz, 3 V	IC 811 Pin 6
	Nessun riconoscimento di coincienza (FI)	>3 V	IC 811 Pin 35
	IC 365/IC 355	+ M/ca. 23 V	IC 365/355 Pin 2
utato on TP	Preamplif. IR	Segnale IR 5 V_{pp}	IC 811 Pin 3
nalo-	Bus I²C, IC 350	5 V_{pp}	IC 350 Pin 4, 5
e	convertitore D/A " " "	1-3 V 2-4 V 2-4 V 0,5-11,5 V	Colore/RGB Pin 10 Colore/RGB Pin 11 Colore/RGB Pin 12 Colore/RGB Pin 3
ta- cchio zione	T 801	All'atto dell'accensione brevemente «LOW» (collettore).	IC 811 Pin 39
FBAS	Tuner	ca. 10 V	Tuner Pin 3
	FI	ca. 10 V	FI Pin 10
	+ B'	+ 12 V	FI Pin 17
non di	C 653, tolleranza troppo grande e difettoso	①, sonda dell' oscillografo 1:10	IC 655 Pin 15

(D) 1. Funktionshinweise ZEILEN-NETZ-TEIL

Beim Zeilen-Netz-Teil (ZNT) handelt es sich um ein neuartiges, synchronisiertes Schaltnetzteil mit kombinierter Horizontal-Endstufenschaltung und nur einer Netztrennstelle im ZNT-Trafo (TR 665). Dieser ermöglicht durch die gewählte Wicklungsanordnung (Patent.) große Laständerungen und einen einfachen Stand By-Betrieb (Patent.) über den Ablenktransistor T 521 bzw. IC 526.

Einschaltvorgang über Netztaste

Der T 661 liegt über die Primärseite des Trafos TR 665 und D 621 an Netzspannung und wird im Zeilenrhythmus geschaltet. Dieser Zeilenrhythmus gesteuert durch IC 655 (PIN 15) erzeugt auf der Sekundärseite die Spannung + M (+ B, + E, + H) für die Kleinsignalversorgung und das IC 526.
Sobald IC 850 eingeschwungen ist wird über T 819 das Einschaltsignal (H-Pegel) an das IC 526 (PIN 6) gegeben. Der vorher ständig leitende T 521 wird periodisch angesteuert und gibt Triggerimpulse an den Synchron-Eingang von IC 655 (PIN 12). Dort wird der Hochlauf in den Normalbetrieb eingeleitet. Die lastabhängige Nachsteuerung zur Stabilisierung des Netzteils übernimmt die Referenzspannung an PIN 10, PIN 2 dient zur Spannungsversorgung.
Bei Stand by (Bereitschaft) wird über IC 850 der PIN 6 des IC 526 auf low gesetzt. PIN 1 des IC 526 wird konstant high und steuert T 521 wie beim Einschaltvorgang voll durch. Dies entspricht einem Kurzschluß des Zeilenkreises und über die fehlenden Triggerimpulse an PIN 12 schaltet IC 655 auf Stand by.
Bei Stand by übernimmt nur PIN 2 die Regelung und Spannungsversorung von IC 655.

2. Service-Hinweise für ZEILEN-NETZ-TEIL

Gerät mit Netztrenntransformator betreiben. Primärseite des Zeilen-Netz-Teils liegt an Netzpotential!
Bei Fehlfunktionen des Zeilen-Netz-Teils nach folgendem Suchschema verfahren:
1. Kollektor/Emitter T 521 überbrücken (entspricht stand by)
2. Anlaufspannung über R 641 Pin 18 IC 655 = ca. 13 V
3. Startspannung über D 647 Pin 2 IC 655 = 10,5 V
4. Referenzspannung Pin 17 IC 655 = 6 V
5. Oszillatorfrequenz Pin 15 IC 655 = 2,5 V_{ss}, 15,625 kHz
6. + M = ca. 11 V (stand by)
   + H = 5 V
7. + C = < 12 V (undefiniert bei stand by)
   + B = ca. 7,5 V (stand by)
   + E = 8 V
8. C 626 muß vor Wechsel des IC 655 entladen sein.
9. Netzteil-Regelbereich: 140-270 V.

(GB) 1. Short Description of the Line Mains Supply Unit

The line mains supply unit (ZNT) is a newly designed and synchronized switch-mode mains supply unit with combined horizontal final-stage circuit and just one mains isolating point in the ZNT transformer (TR 665). Due to the chosen arrangement of windings (patent) the transformer allows large load variations and easy stand-by operation (patent) via the deflecting transistor T 521 or IC 526.

Process on operation of power button.

T 661 is connected to the mains voltage via the primary side of transformer TR 665 and D 621 and is connected into the circuit in line rhythm. The line rhythm produced by IC 655 (pin 15) generates the + M (+ B, + E, + H) voltage at the secondary side for the supply of low-level signals and for IC 526. After the transient response time of IC 850 the switch-on signal (H level) is supplied via T 850 to IC 526 (pin 6). The previously continuously conducting T 521 is now subject to cyclical control and applies trigger pulses to the synchronous input of IC 655 (pin 12) where the necessary voltage increase for normal operation is initiated. The reference voltage at pin 10provides the load-dependent compensation for stabilizing the mains supply; pin 2 is used for power supply.
In the stand-by mode, pin 6 of IC 526 is set to low via IC 850. In this way, pin 1 of IC 526 is at a constant high and drives transistor T 521 at full load as is the case on switch-on. This is equivalent to a short circuit of the line deflecting stage and IC 655 switches to stand-by due toi the lack of trigger pulses at pin 12.
In the stand-by mode, only pin 2 provides the control and voltage supply from IC 655.

2. Service Instructions for Line Mains Supply Unit

Operate the unit via the mains isolating transformer. The primary side of the Line Mains Supply Unit is connected to the mains potential!
Troubleshooting in case of line mains supply failures:
1. Short circuit collector/emitter T 521 (= stand by)
2. Initial voltage via R 641, pin 18, IC 655 = 13 V approx.
3. Starting voltage via D 647, pin 2, IC 655 = 10.5 V
4. Reference voltage, pin 17, IC 655 = 6 V
5. Oscillator frequency, pin 15, IC 655 = 2.5 V_{pp}, 15,625 kHz
6. + M = 11 V approx. (stand-by)
   + H = 5 V
7. + C = < 12 V (not defined in stand-by)
   + B = 7.5 V approx (stand by)
   + E = 8 V
8. Be sure to discharge C 626 before replacing IC 655.
9. Mains unit range of adjustment: 140-270 V

(I) 1. Breve descrizione dell'alimentatore di riga

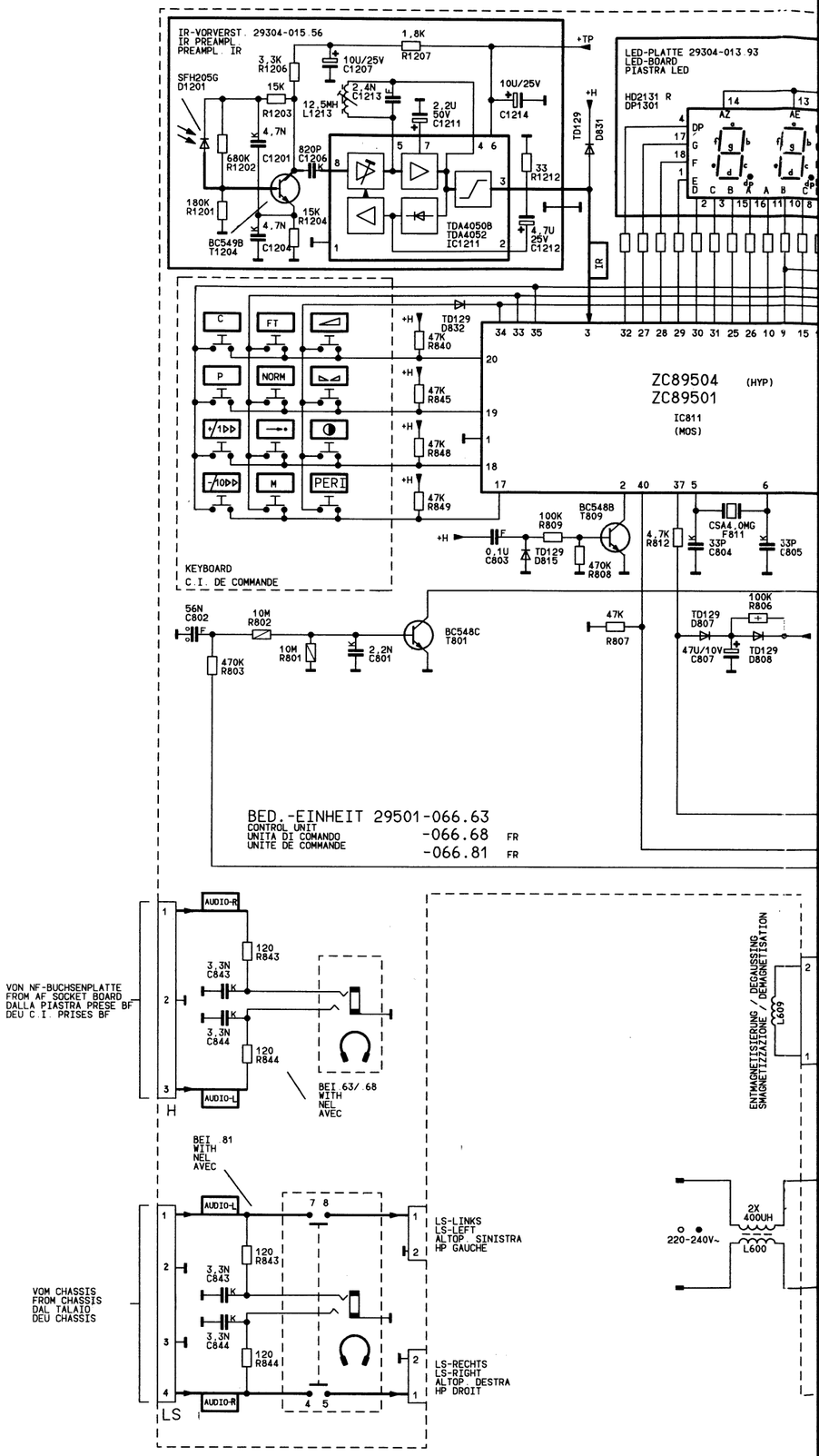
L'alimentatore di riga (ZNT) è un alimentatore di commutazione sincronizzato di nuova concezione con un circuito di stadio finale orizzontale combinato ed un solo punto di separazione di rete nel trasformatore ZNT (TR 665). Esso consente, grazie alla costruzione adottata per l'avvolgimento, grandi variazione del carico ed un semplice funzionamento stand-by per mezzo di T 521 di deflessione e risp.te di IC 526.

Accensione con l'interruttore di rete

T 661 è collegato alla tensione di rete attraverso il primario del trasformatore TR 665 e D 621 e viene commutato el ritmo delle righe. Questo ritmo, su comando di IC 655 (pin 15), genera sul secondario la tensione + M (+ B, + E, + H) per l'alimentazione di alcune sezioni circuitali e di IC 526.
Quando IC 850 è attivo, attraverso T 819, il segnale di accensione (livello H) giunge a IC 526 (pin 6). T 521, prima costantemente in conduzione, viene ora comandato periodicamente ed invia impulsi di trigger all'ingresso sincrono di IC 655 (pin 12). La presenza degli impulsi di trigger fa commutare l'integrato IC 655 da funzionamento stand-by a funzionamento normale. La regolazione, in funzione del carico, per la stabilizzazione dell'alimentatore viene effettuata dalla tensione di riferimento al pin 10. La tensione d'alimentazione è invece costantemente su HIGH. In questo modo T 521 conduce completamente come nel processo d'accensione. Ciò rappresenta un cortocircuito del circuito di riga e, tramite gli impulsi di trigger mancanti al pin 12, IC 655 commuta in stand-by.
Questa situazione prevede che solo sul pin 2 sia presente la tensione di regolazione e di alimentazione di IC 655.

2. Istruzioni di servizio per l'alimentatore di riga

Alimentare l'apparecchio con un trasformatore separatore di rete. Il lato primario dell'alimentatore è a potenziale di rete!
Se l'alimentatore di riga funziona erroneamente, ricercare il guasto nel seguente modo:
1. Cortocircuitare collettore/emettitore di T 521 (corrisponde a stand-by).
2. Tensione di avviamento, tramite R 641, pin 18 IC 655 = ca. 13 V.
3. Tensione di start.
4. Tensione di riferimento, pin 17 IC 655 = 6 V.
5. Frequenza dell'oscillatore, pin 15 IC 655 = 2,5 V_{pp}, 15,625 kHz.
6. + M = ca. 11 V (stand-by)
   + H = 5 V
7. + C = < 12 V (indefinito in stand-by)
   + B = 7,5 V (corrisponde a stand by)
   + E = 8 V
8. C 626 deve essere scarico prima di cambiare IC 655.
9. Campo di regolazione dell'alimentatore: 140-270 V.



haltnetzteil mit kombinierter Horizontal-Endstufen-
t durch die gewählte Wicklungsanordnung (Patent.)
blenktransistor T 521 bzw. IC 526.

und wird im Zeilenrhythmus geschaltet. Dieser Zei-
annung + M (+ B, + E, + H) für die Kleinsignalver-

n das IC 526 (PIN 6) gegeben. Der vorher ständig lei-
-Eingang von IC 655 (PIN 12). Dort wird der Hochlauf
ung des Netzteils übernimmt die Referenzspannung

PIN 1 des IC 526 wird konstant high und steuert T 521
nkreises und über die fehlenden Triggerimpulse an

55.

gt an Netzpotential!
:

de mains supply unit with combined horizontal final-
e to the chosen arrangement of windings (patent) the
e deflecting transistor T 521 or IC 526.

5 and D 621 and is connected into the circuit in line
+ H) voltage at the secondary side for the supply of
tch-on signal (H level) is supplied via T 850 to IC 526
ntrol and applies trigger pulses to the synchronous
is initiated. The reference voltage at pin 10provides
r power supply.
26 is at a constant high and drives transistor T 521 at
deflecting stage and IC 655 switches to stand-by due

5.

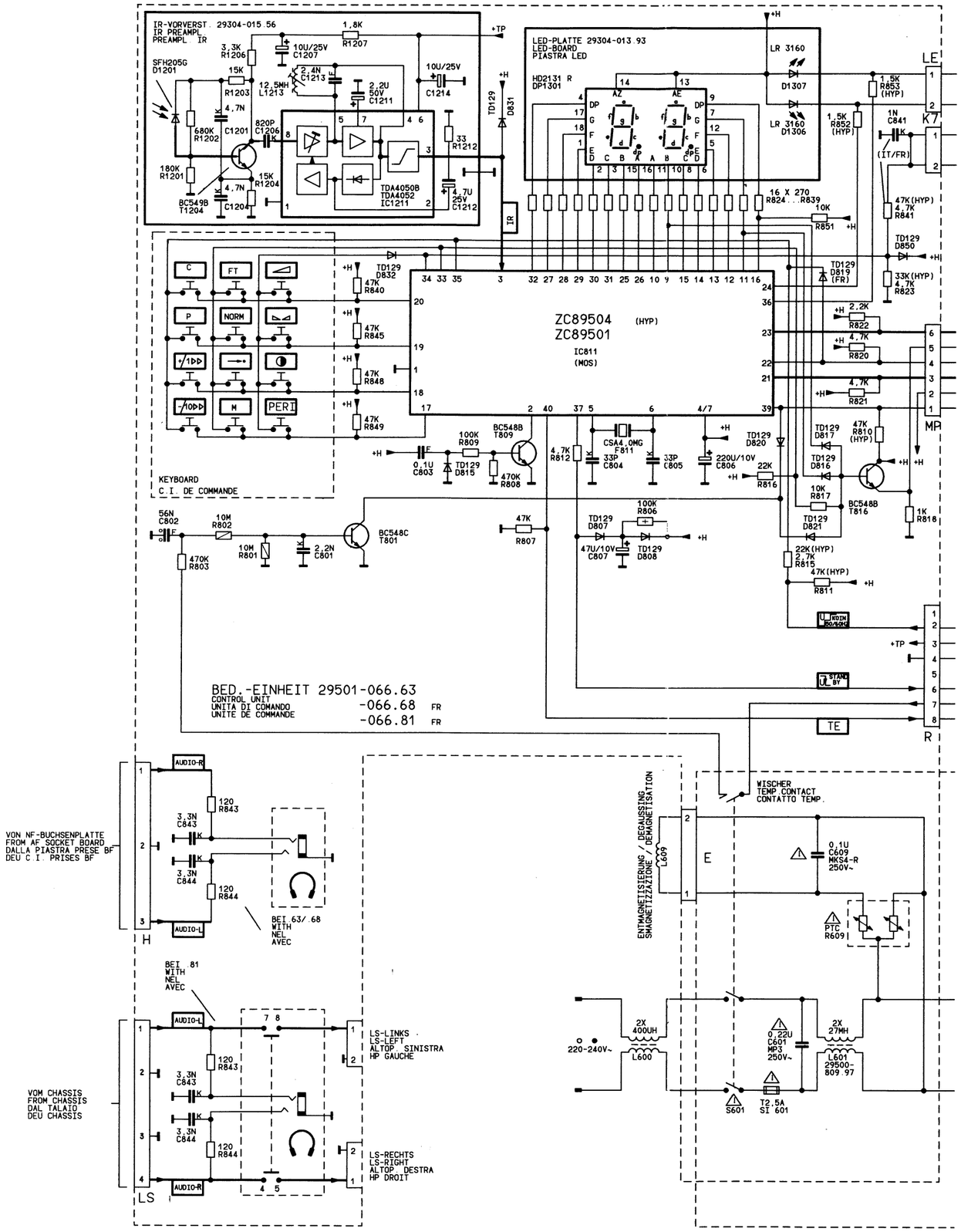
ins Supply Unit is connected to the mains potential!

nova concezione con un circuito di stadio finale oriz-
TR 665). Esso consente, grazie alla costruzione adot-
o stand-by per mezzo di T 521 di deflessione e risp.te

e D 621 e viene commutato el ritmo delle righe. Que-
B, + E, + H) per l'alimentazione di alcune sezioni

a IC 526 (pin 6). T 521, prima costantemente in condu-
sincrono di IC 655 (pin 12). La presenza degli impulsi
nto normale. La regolazione, in funzione del carico,
o al pin 10. La tensione d'alimentazione è invece co-
rocesso d'accensione. Ciò rappresenta un cortocir-
mmuta in stand-by.
e e di alimentazione di IC 655.

dell'alimentatore è a potenziale di rete!
nodo:



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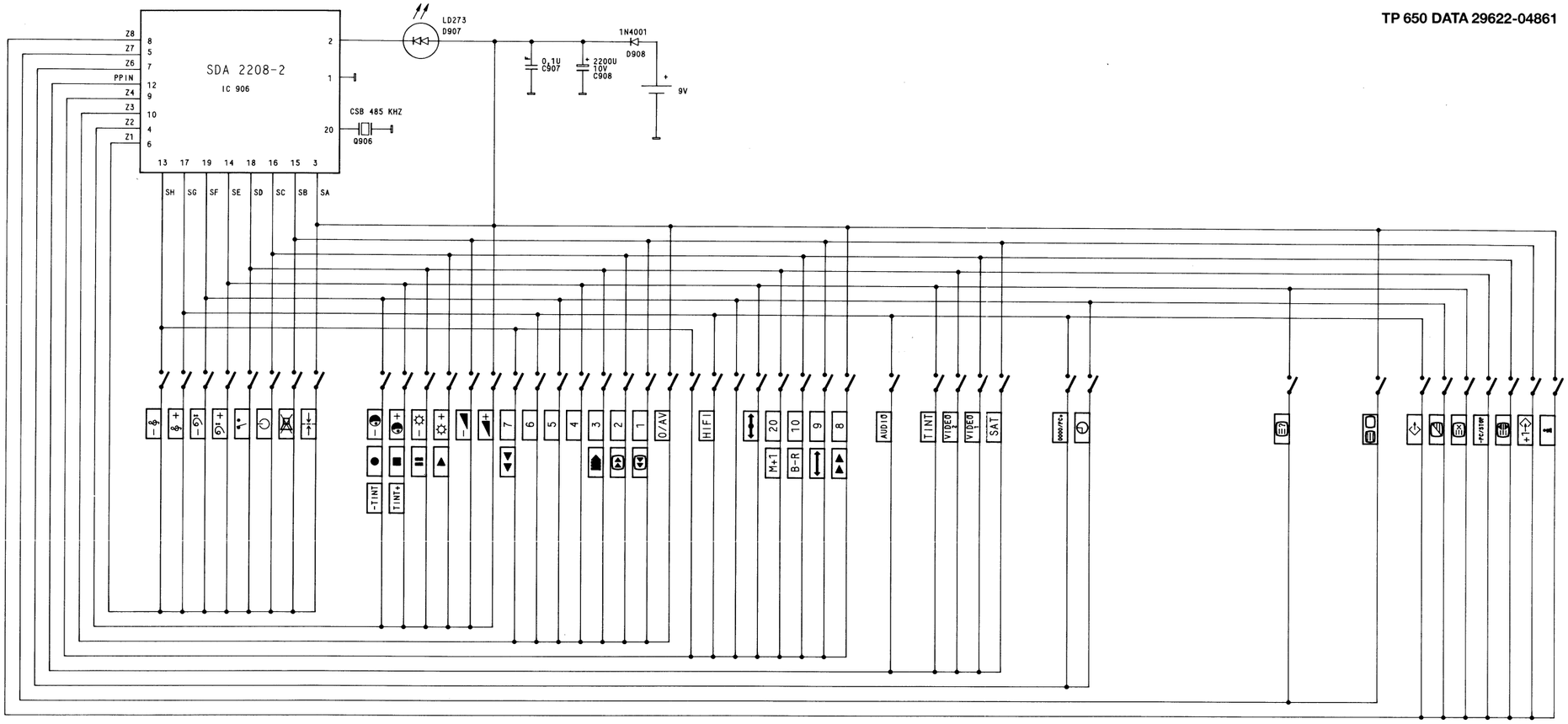

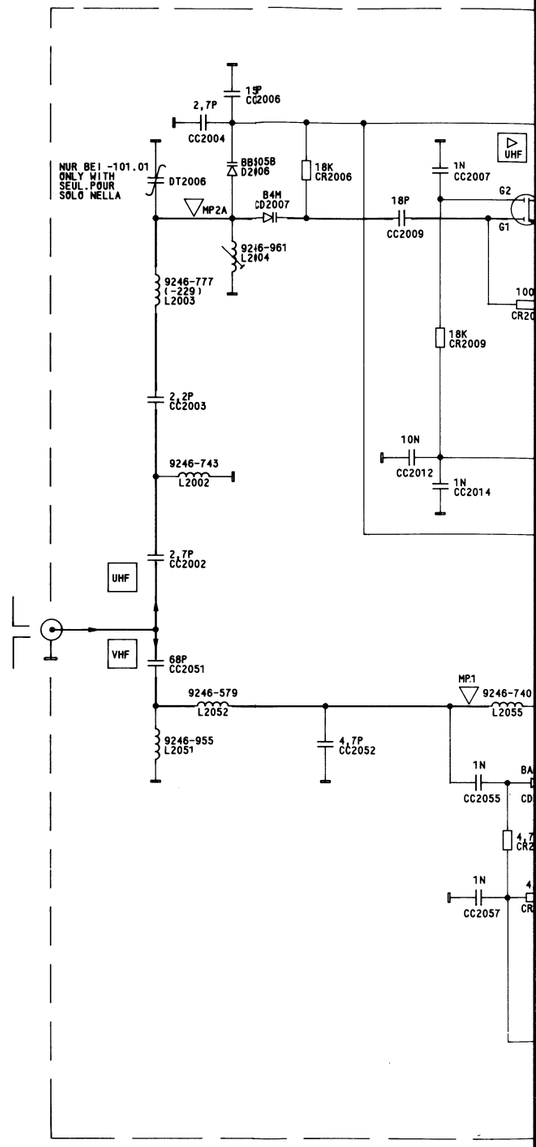

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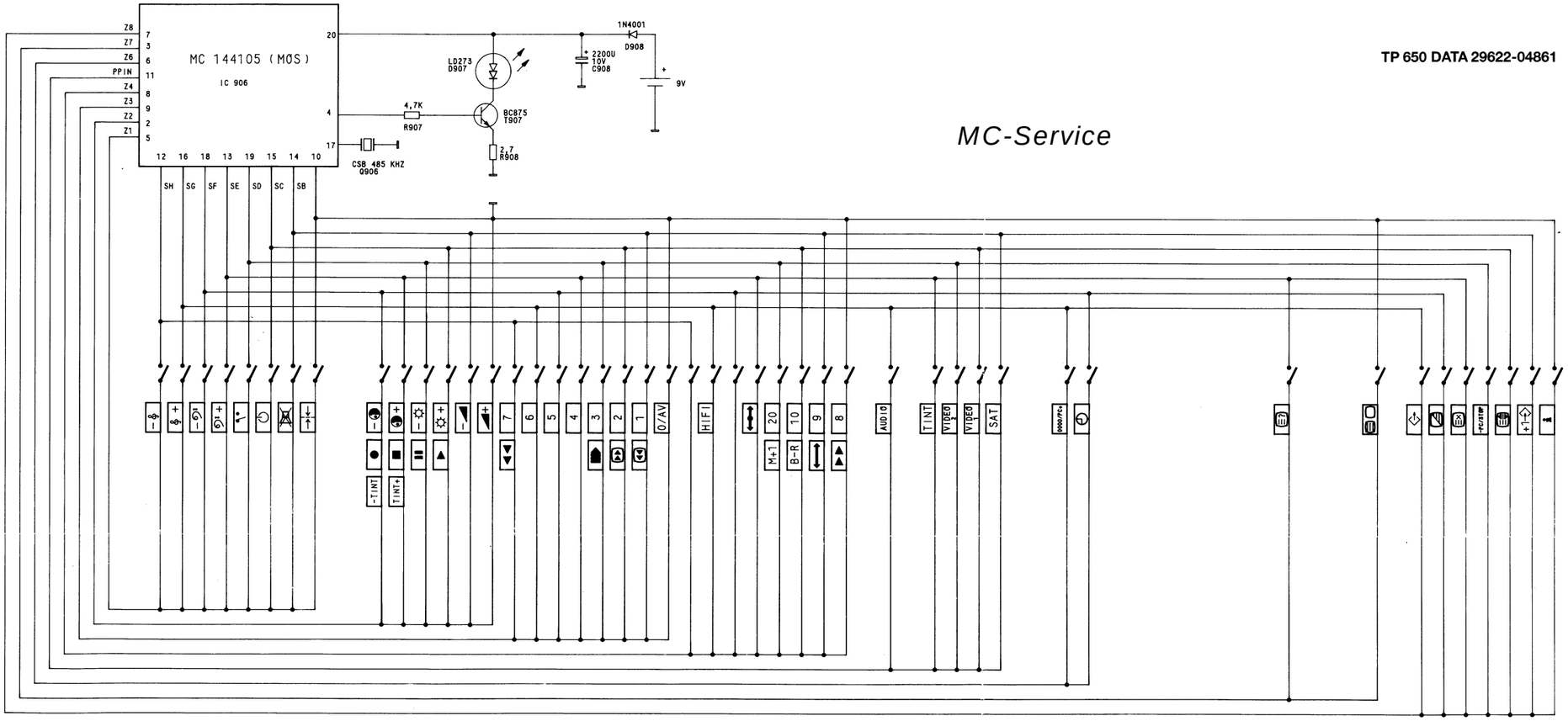

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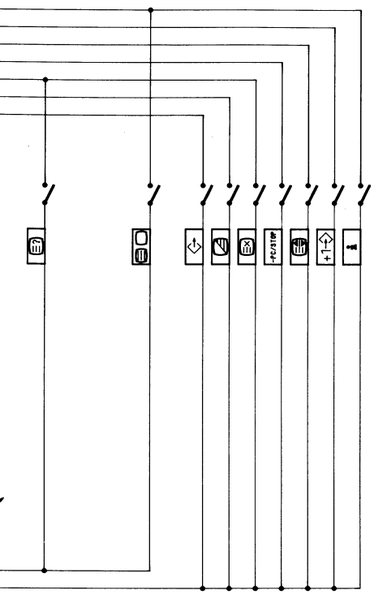

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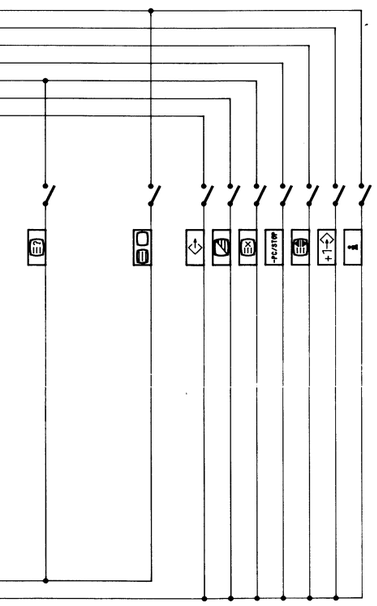

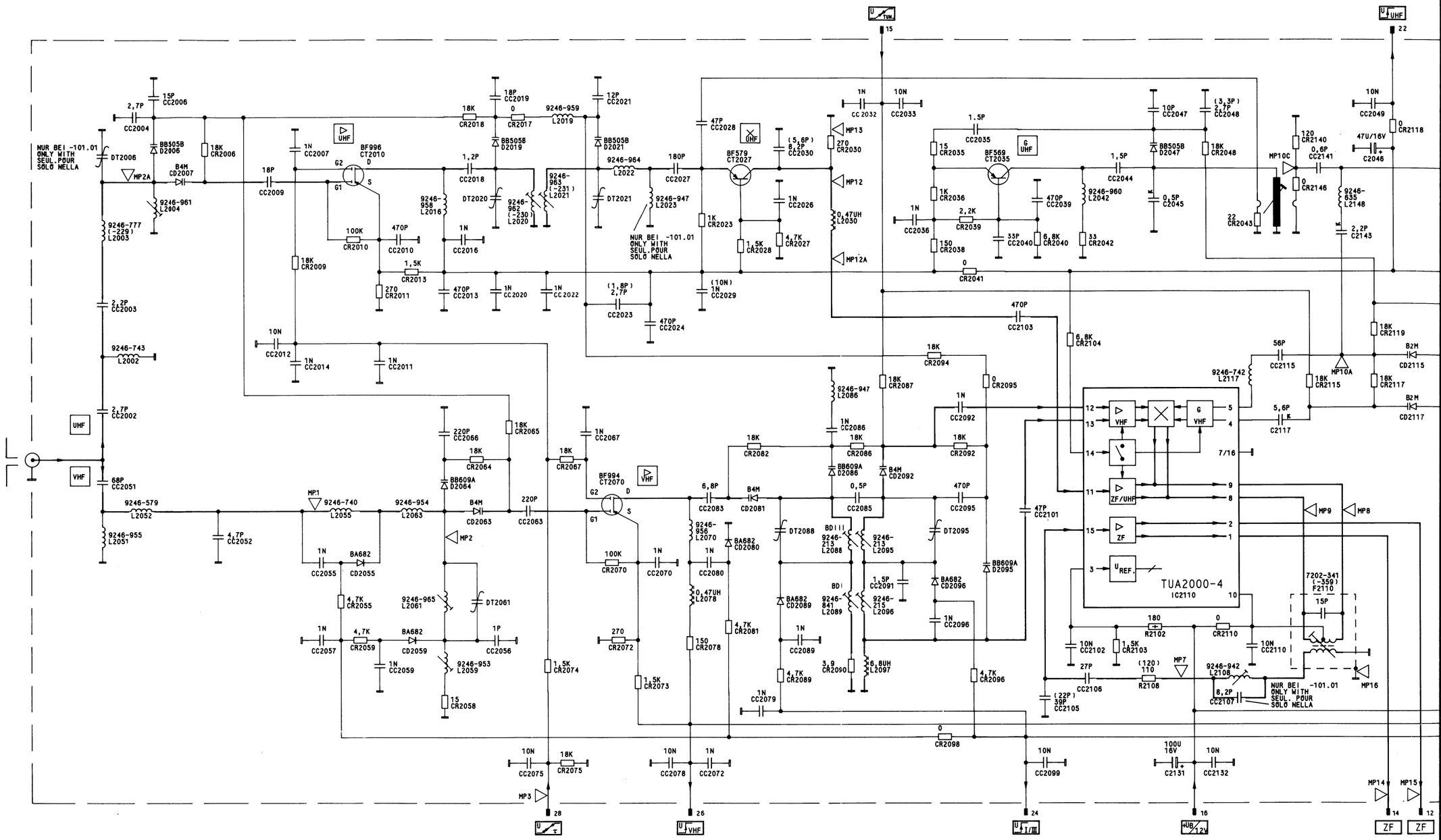

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When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto

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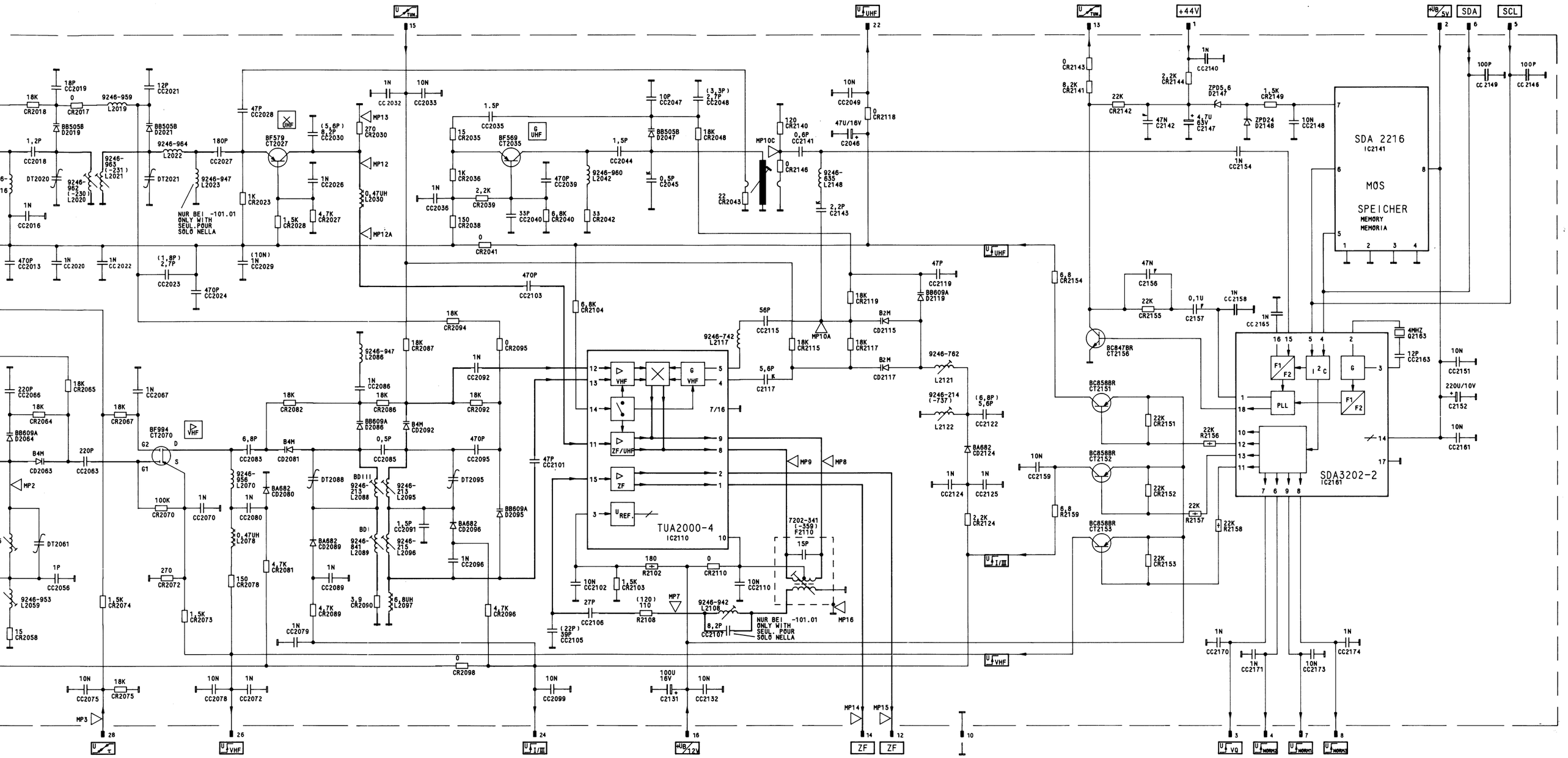

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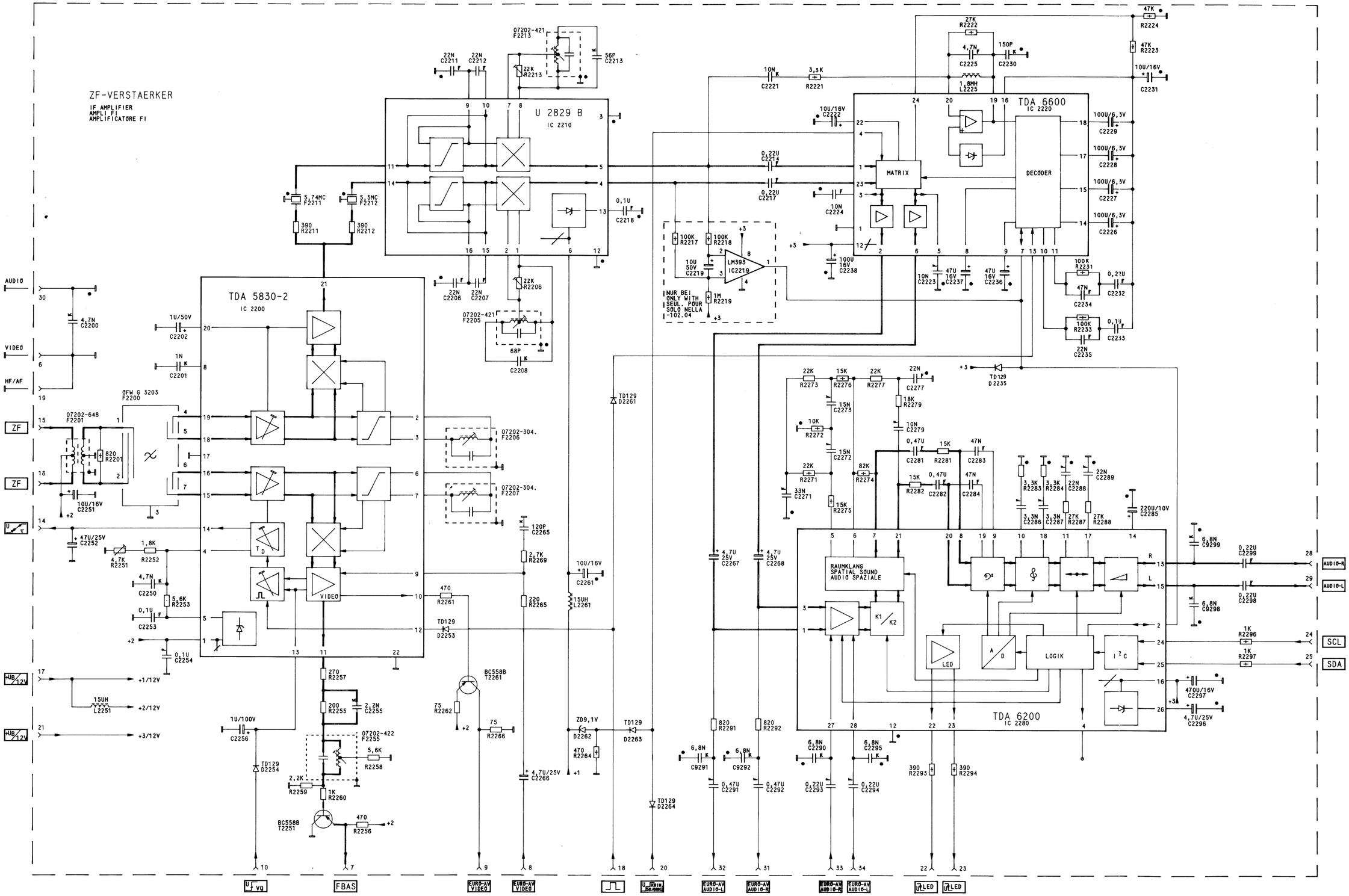

Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
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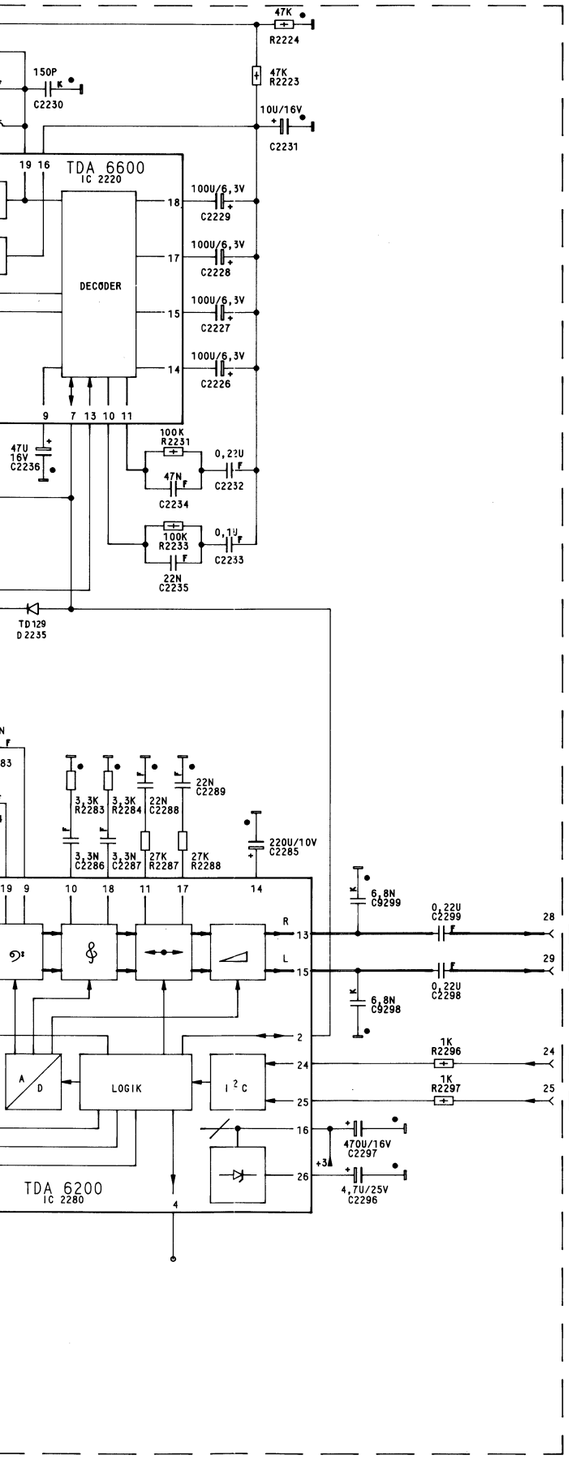
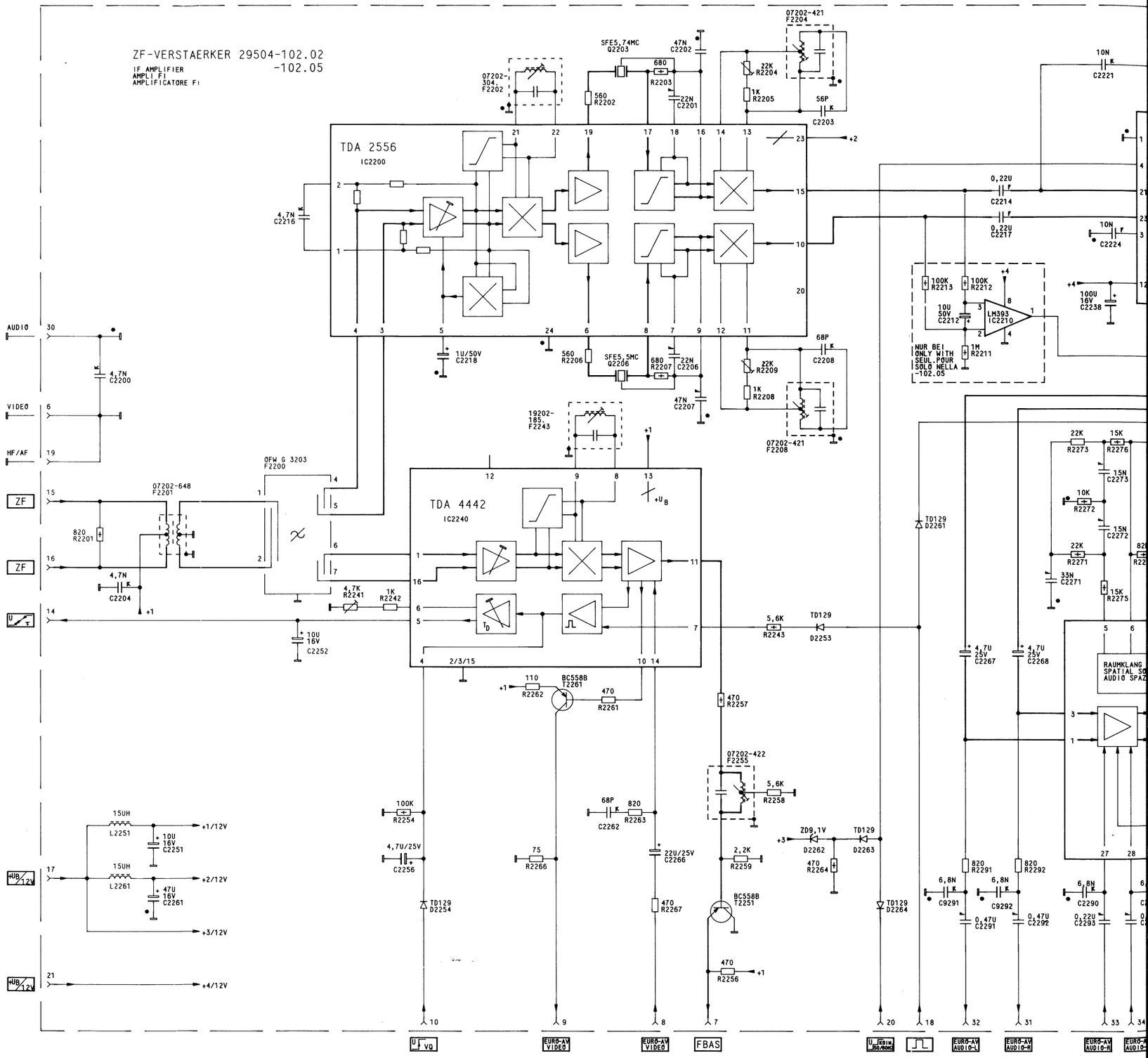
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto





Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto

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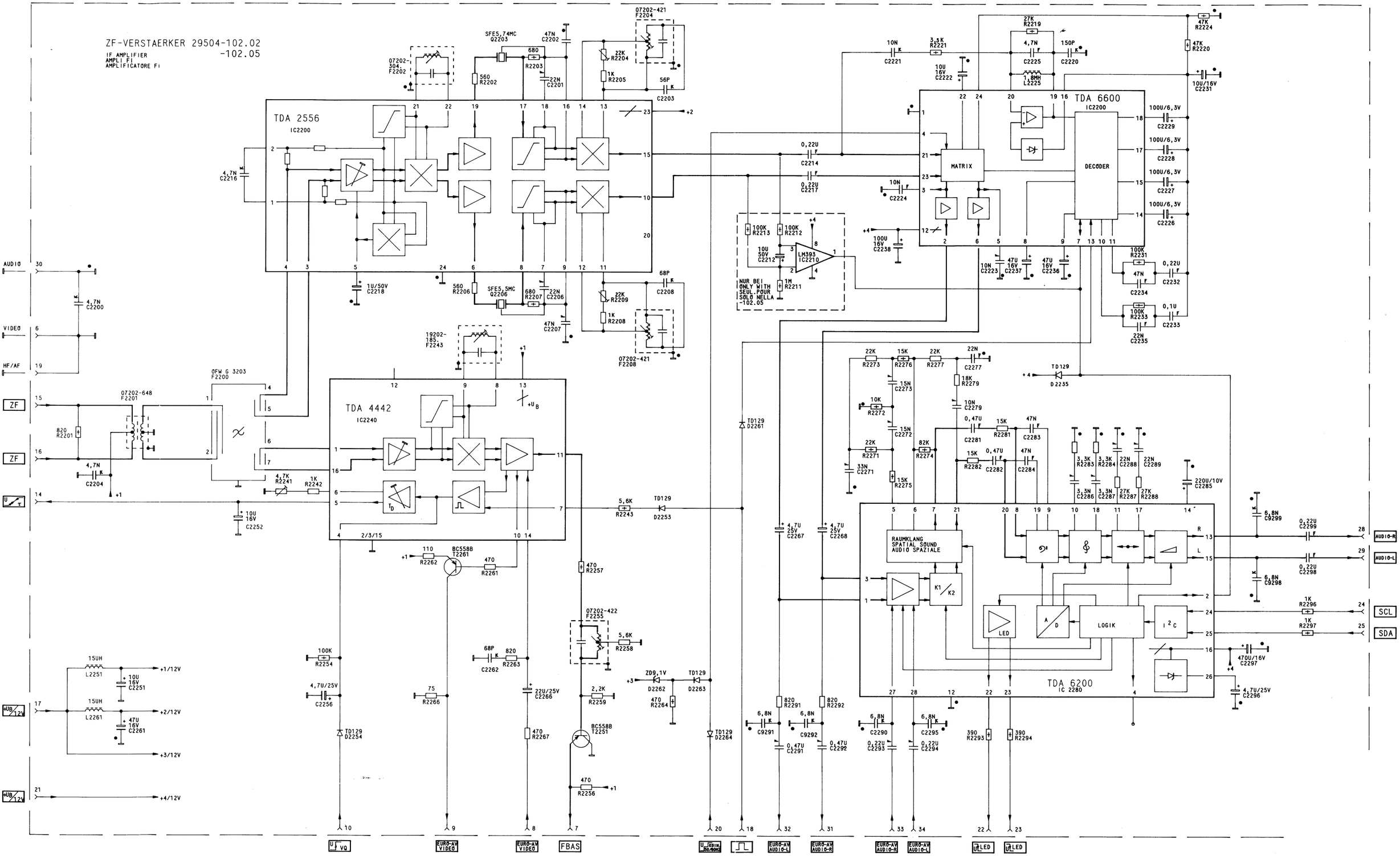
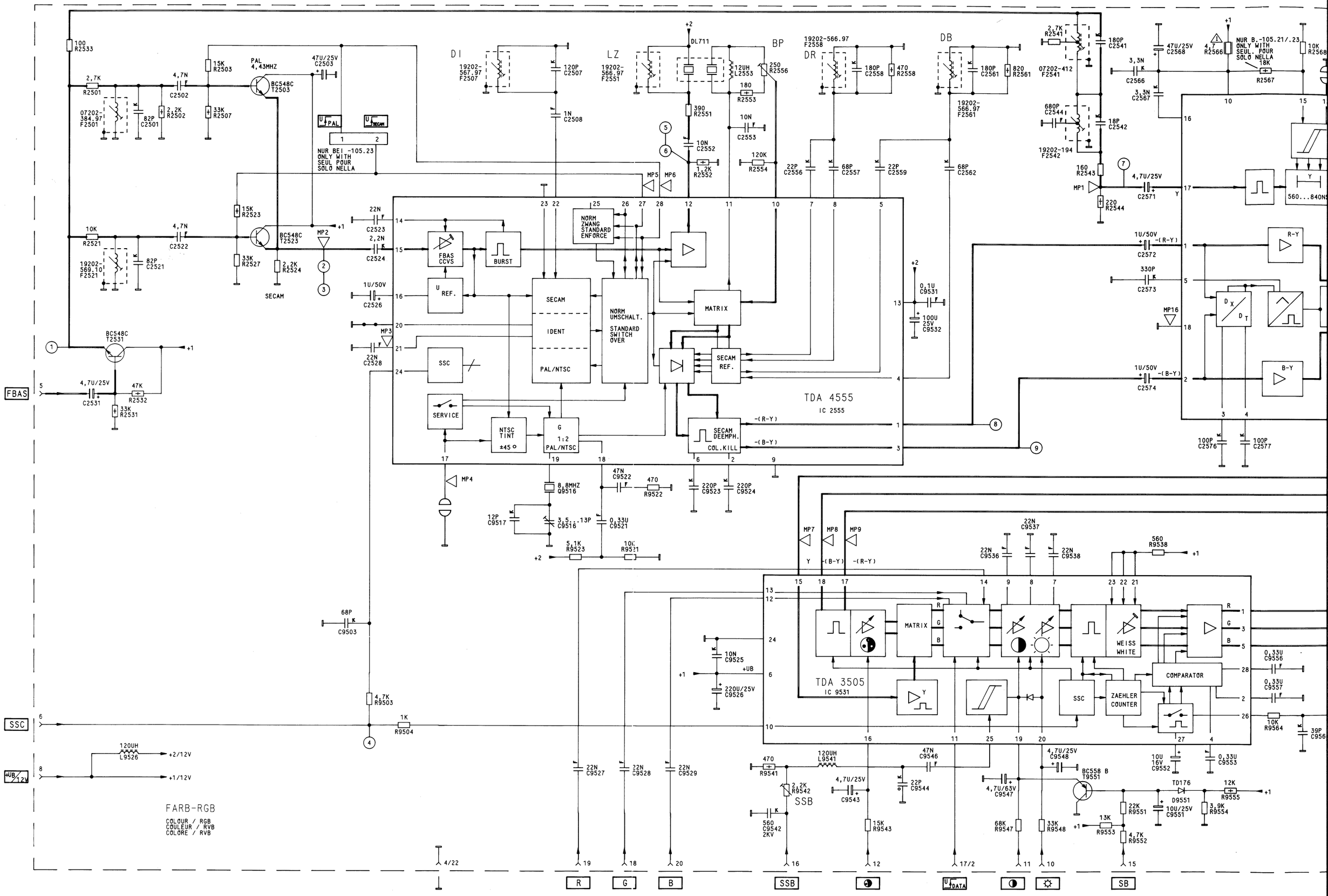
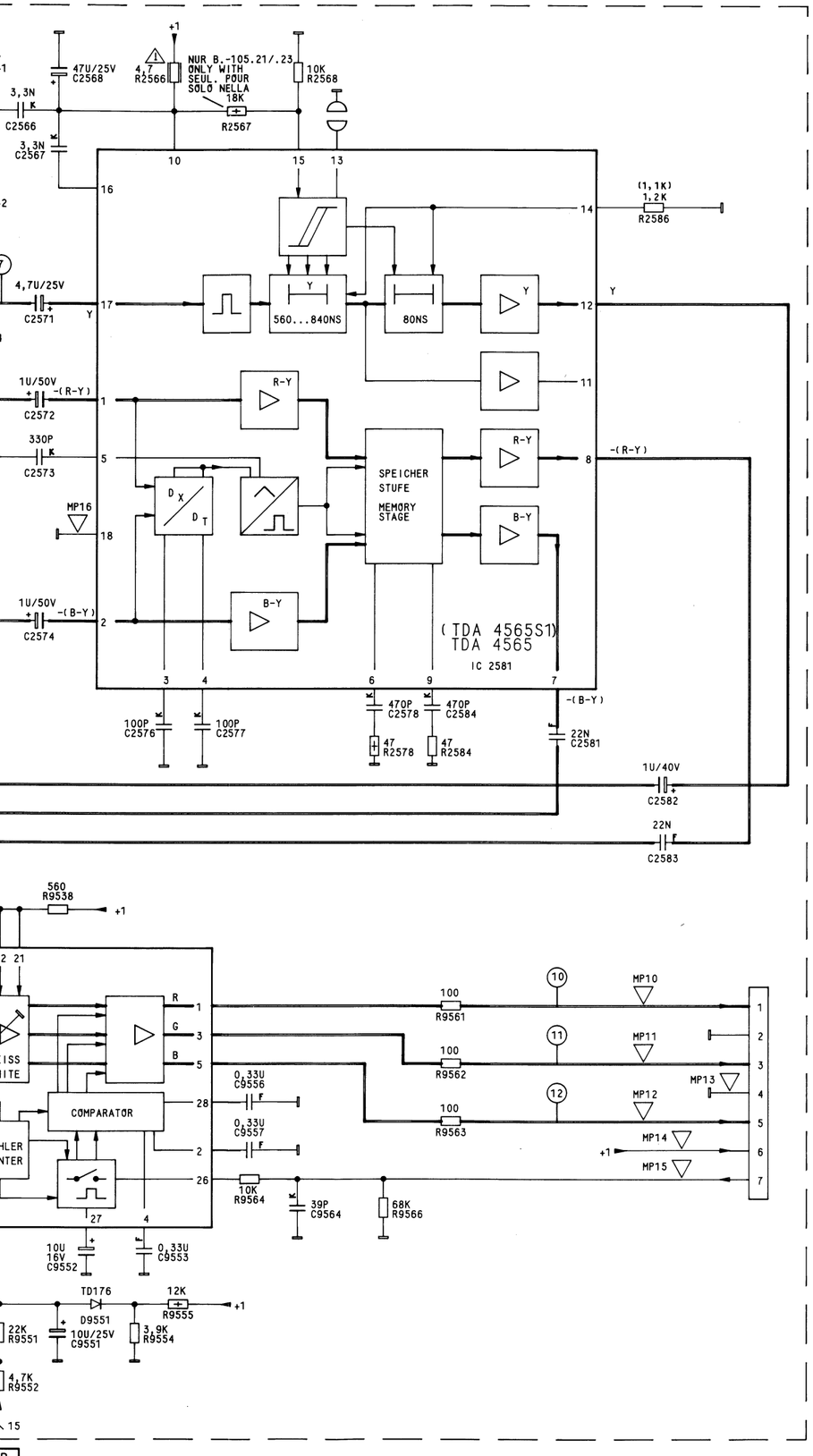
AMPLI FI
AMPLIFICATORE FI



Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto


100 R2533
2,7K R2501
07202-384.97 F2501
82P C2501
4,7N C2502
2,2K R2502
15K R2503
33K R2507
PAL 4,43MHZ
BC548C T2503
47U/25V C2503
PAL
SECAM
1 2
NUR BEI -105.23 ONLY WITH SEUL POUR SOLO NELLA
10K R2521
19202-569.10 F2521
82P C2521
4,7N C2522
15K R2523
33K R2527
BC548C T2523
2,2K R2524
MP2
+1
22N C2523
2,2N C2524
SECAM
1U/50V C2526
MP3
22N C2528
BC548C T2531
FBAS
4,7U/25V C2531
47K R2532
33K R2531
DI
19202-567.97 F2507
120P C2507
1N C2508
LZ
19202-566.97 F2551
DL711
12UH L2553
250 R2556
180 R2553
390 R2551
10N C2552
1,2K R2552
10N C2553
120K R2554
BP
19202-566.97 F2558
DR
180P C2558
470 R2558
22P C2556
68P C2557
22P C2559
DB
180P C2561
820 R2561
19202-566.97 F2561
68P C2562
2,7K R2541
07202-412 F2541
180P C2541
3,3N C2566
3,3K C2567
47U/25V C2568
4,7 R2566
NUR B.-105.21/.23 ONLY WITH SEUL POUR SOLO NELLA
18K
R2567
10K R2568
680P C2544
19202-194 F2542
18P C2542
160 R2543
220 R2544
4,7U/25V C2571
MP1
560...840NS
NORM ZWANG STANDARD ENFORCE
FBAS CCVS
BURST
U REF.
SECAM
IDENT
PAL/NTSC
NORM UMSCHALT. STANDARD SWITCH OVER
SSC
SERVICE
NTSC TINT ±45°
G 1:2 PAL/NTSC
MATRIX
SECAM REF.
SECAM DEEMPH. COL.KILL
TDA 4555
IC 2555
0,1U C9531
100U 25V C9532
1U/50V -(R-Y) C2572
330P C2573
MP16
1U/50V -(B-Y) C2574
R-Y
B-Y
100P C2576
100P C2577
MP4
8,8MHZ Q9516
12P C9517
3,5...13P C9516
0,33U C9521
47N C9522
470 R9522
220P C9523
220P C9524
5,1K R9523
10K R9521
MP5
MP6
MP7
MP8
MP9
Y
-(B-Y)
-(R-Y)
22N C9536
22N C9537
22N C9538
560 R9538
MATRIX
WEISS WHITE
COMPARATOR
ZAEHLER COUNTER
SSC
TDA 3505
IC 9531
0,33U C9556
0,33U C9557
10K R9564
39P C9564
68P C9503
4,7K R9503
1K R9504
10N C9525
+UB
220U/25V C9526
22N C9527
22N C9528
22N C9529
470 R9541
120UH L9541
2,2K R9542
SSB
560 C9542 2KV
4,7U/25V C9543
15K R9543
47N C9546
22P C9544
4,7U/25V C9548
4,7U/63V C9547
68K R9547
33K R9548
BC558 B T9551
10U 16V C9552
0,33U C9553
TD176
D9551
10U/25V C9551
12K R9555
3,9K R9554
22K R9551
13K R9553
4,7K R9552
120UH L9526
+2/12V
+1/12V
FARB-RGB
COLOUR / RGB
COULEUR / RVB
COLORE / RVB
FBAS
SSC
+UB 12V
R
G
B
SSB
SB

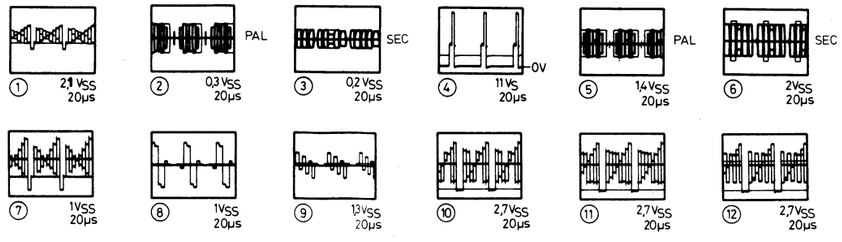


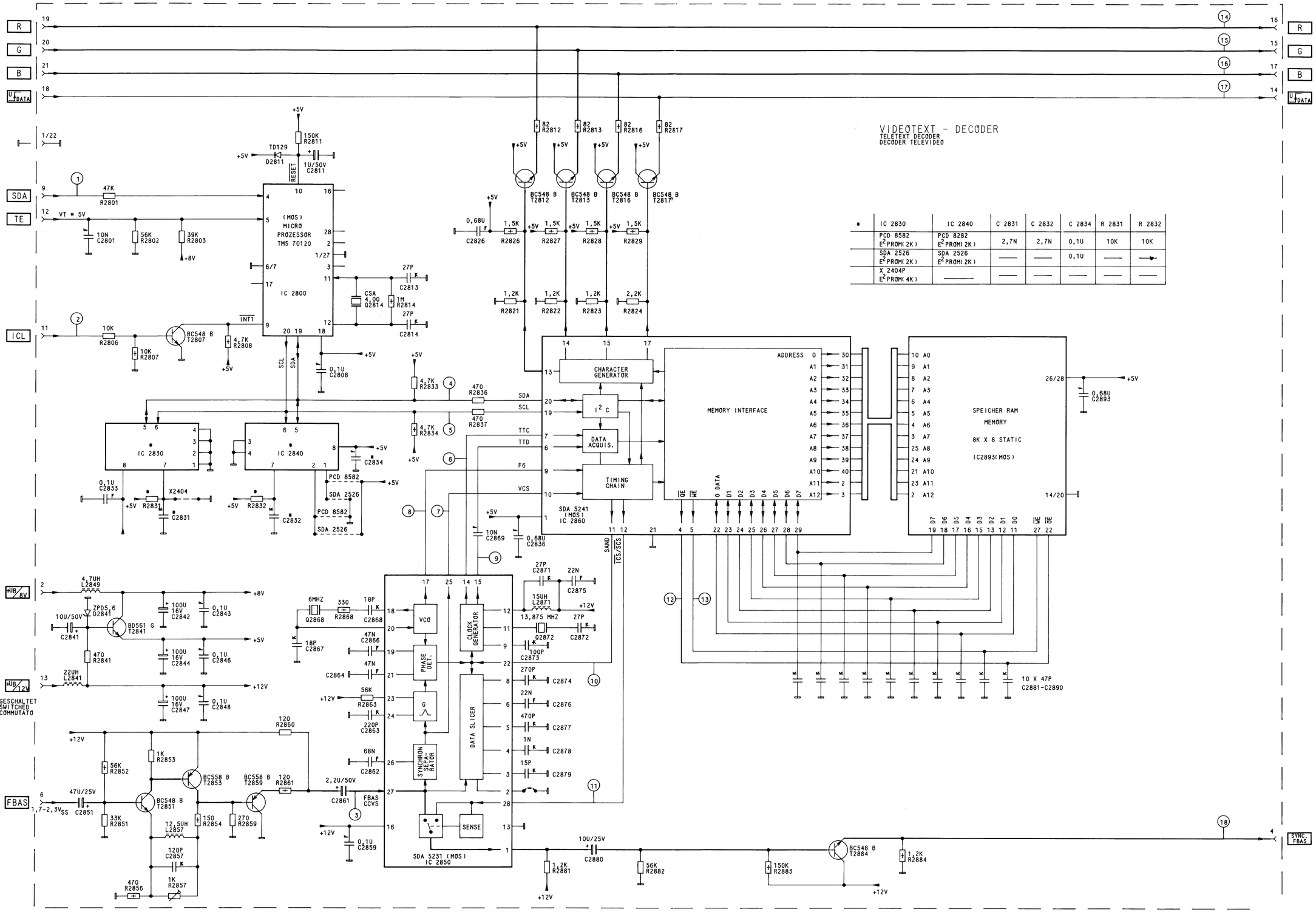
23

1. **Weißabgleich**
   - FuBK-Testbild einspeisen.
   - ◑min., ☼nom., ◑max., einstellen.
   - Regler VR und VB (Bildrohrplatte) so einstellen, daß keine Verfärbungen in den Grauwerten sichtbar sind.
2. **Sperrpunktabgleich**
   Eine manuelle Einstellung ist nicht möglich, da die Steckkarte eine automatische Dunkelstromregelung besitzt. Kontrolle des Sperrpunkts (Oszilloskop erforderlich).
   - FuBK-Testbild einspeisen.
   - ◑min., ☼nom., ◑min., einstellen.
   - Tastkopf an den Kollektoren der Transistoren T736, T756, T776 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei ca. 140 ... 150 V.
3. **Einstellungen im Farbkanal**
   - PAL-Testbild einspeisen.
   - FK nom., H nom., K max. einstellen.
   - IC-Pin 28 vom TDA 4555 mit + 12 V verbinden.
   - IC-Pin 17 vom TDA 4555 mit Masse verbinden.
   - Mit Trimmer C 9516 die durchlaufenden Farbbalken zum Stehen bringen.
   - Kurzschlußbrücken entfernen.
   - Tastkopf an MP 12, mit Regler BP und Spule LZ die Doppelbilder des B-Signals zur Deckung bringen.
   - SECAM-Testbild einspeisen.
   - Tastkopf an Pin 1 vom TDA 4555 anschließen, mit Spule DR Nullinie des (R-Y)-Signals auf Zeilenniveau bringen.
   - Tastkopf an Pin 3 vom TDA 4555 anschließen, mit Spule DB Nullinie des (B-Y)-Signals auf Zeilenniveau bringen.
   - Spule F 2521 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

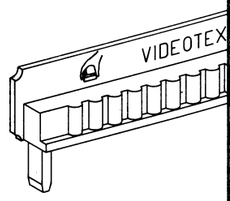
1. **White level adjustment.**
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to max.
   - Adjust presets VR and VB (CRT socket board) so that the picture does not show any colouration.
2. **Adjustment of cut-off point.**
   Manual adjustment is not possible, as the circuit board employs an automatic dark current control circuit.
   To check cut-off point (oscilloscope required), proceed as follows:
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to min.
   - Connect test probe to collectors of T736, T756, T776 (CRT socket board).
     The black levels of the three cathode signals should be 140 - 150 V.
3. **Adjustments in chroma channel.**
   - Display PAL test pattern.
   - Adjust colour level and brightness to nominal value, contrast to maximum.
   - Connect pin 28 of IC TDA 4555 to + 12 V supply.
   - Connect pin 17 to IC TDA 4555 to chassis.
     Adjust trimmer C 9516 for stationary pattern in colour bars.
   - Remove wire links.
   - Connect test probe to test point MP 12. Bring the double image produced by the B signal to coincidence by adjusting the preset BP and the coil LZ.
   - Display SECAM test pattern.
   - Connect test probe to pin 1 of IC TDA 4555.
   - Use coil DR to align zero level of the (R-Y) signal with the line black level.
   - Connect test probe to pin 3 of IC TDA 4555.
   - With coil DB to align zero level of the (B-Y) signal with the line black level.
   - Adjust coil F 2521 so that the (B-Y) signal is free of overshooting.

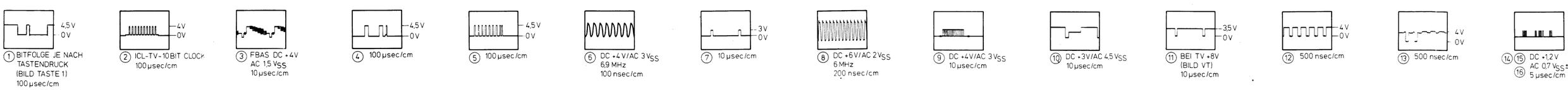
1. **Taratura del bianco**
   - Applicare un monoscopio FuBK
   - Regolare ◑ al minimo, ☼ sul valore nominale e ◑ al massimo.
   - Con i regolatori VR e VB (piastra cinescopio) eliminare eventuali macchie di colore.
2. **Taratura del punto di blocco**
   Una regolazione manuale non è possibile, poichè questa scheda incorpora una regolazione automatica della corrente d'interdizione.
   Controllo del punto di blocco (è necessario un oscilloscopio):
   - Applicare un monoscopio FuBK.
   - Regolare ◑ al minimo, ☼ sul valore nominale e ◑ al minimo.
   - Collegare la sonda ai collettori dei transistori T736, T756, T776 (piastra cinescopio).
     Valore nero dei tre segnali catodici ca. 140...150 V.
3. **Regolazione del canale colore.**
   - Applicare un monoscopio PAL.
   - Regolare FK e H sul valore nominale, K al massimo.
   - Sull'integrato TDA 4555 collegare pin 28 a + 12 V.
   - Sull'integrato TDA 4555 collegare pin 17 a massa.
     Con C 9516 fermare le barre colorate scorrevoli.
   - Togliere i cortocircuiti.
   - Collegare la sonda a MP 12, con il regolatore BP e la bobina LZ portare a copertura le immagini doppie del segnale B.
   - Applicare un monoscopio SECAM.
   - Collegare la sonda al pin 1 dell'integrato TDA 4555, con la bobina DR portare la linea zero del segnale (R-Y) sul livello della frequenza di riga.
   - Collegare la sonda al pin 3 dell'integrato TDA 4555, con la bobina DB portare la linea zero del segnale (B-Y) sul livello della frequenza di riga.
   - La bobina F 2581 applicarla così in modo che il signale (B-Y) sia chiaro.





•	IC 2830	IC 2840	C 2831	C 2832	C 2834	R 2831	R 2832
	PCD 8582 E²PROM(2K)	PCD 8282 E²PROM(2K)	2,7N	2,7N	0,1U	10K	10K
	SDA 2526 E²PROM(2K)	SDA 2526 E²PROM(2K)	——	——	0,1U	——	→
	X 2404P E²PROM(4K)	——	——	——	——	——	——




4,5 V 0 V
① BITFOLGE JE NACH TASTENDRUCK (BILD TASTE 1) 100 µsec/cm
4 V 0 V
② ICL-TV-10BIT CLOCK 100 µsec/cm
③ FBAS DC +4V AC 1,5 VSS 10 µsec/cm
④ 100 µsec/cm
⑤ 100 µsec/cm
⑤ DC +4 V/AC 3 VSS 6,9 MHz 100 nsec/cm
3 V 0 V
⑦ 10 µsec/cm
⑧ DC +6 V/AC 2 VSS 6 MHz 200 nsec/cm
⑨ DC +4 V/AC 3 VSS 10 µsec/cm
⑩ DC +3 V/AC 4,5 VSS 10 µsec/cm
3,5 V 0 V
⑪ BEI TV +8V (BILD VT) 10 µsec/cm
⑫ 500 nsec/cm
⑬ 500 nsec/cm
⑭ ⑮ DC +1,2 V AC 0,7 VSS ± 3 dB
⑯ 5 µsec/cm

VT-Nachrüstung und Anp

Beim Nachrüsten der Vide
text-Steckerplatte entfern
dung im Service Manual).

Der Einsteller R 2857 steh
schlag (kleinste Höhenanh
wandfreiem Antennensigna
sam nach links verstellen, b
terdrehen, da Fehlerhäufig

Während des Abgleiches
ständig neu anzuwählen, d
wird und eine Beurteilung

VT (GB: Teletext) instalat

When fitting the Videotext (
ohm resistors marked by * o
plate have to be removed ("
vice Manual).

The control R 2857 is set in
the unit is delivered (small
with a perfect aerial signal o
slowly anticlockwise until
R 2857 up any further as e

Page 199 must always be
ment, as only this effects a
possible to evaluate the er

**Montaggio e taratura d
innesto**

Nel montare la scheda tele
contrassegnate sui telaio c
vedere l'illustrazione del te

Il regolatore R 2857 viene fo
mente all'estrema destra (
quenze, ca. 2 dB). Se si ma
stante un perfetto segnale
cursore di R 2857 verso sini
girarlo oltre può riaumanta

Durante la taratura è neces
pagina 199, poiché solo co
ne della pagina ed una va

VT-Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videotext-Steckkarte muß die Videotext-Steckerplatte entfernt werden (* siehe Chassis-Abbildung im Service Manual).

Der Einsteller R 2857 steht bei Auslieferung auf Rechtsanschlag (kleinste Höhenanhebung, ca. 2 dB). Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, R 2857 langsam nach links verstellen, bis Fehler verschwinden. Nicht weiterdrehen, da Fehlerhäufigkeit wieder zunehmen kann.

Während des Abgleiches ist es notwendig, die Seite 199 ständig neu anzuwählen, da nur so die Seite neu eingelesen wird und eine Beurteilung der Fehlerschwelle möglich ist.

VT (GB: Teletext) instalation and matching adjustment

When fitting the Videotext (GB: Teletext) plug-in board, the 1-ohm resistors marked by * on the chassis or the Videotext plug plate have to be removed (*see chassis illustration in the Service Manual).

The control R 2857 is set in the fully clockwise position when the unit is delivered (smallest treble boost: approx. 2 dB). If, with a perfect aerial signal character faults occur, turn R 2857 slowly anticlockwise until the faults disappear. Do not turn R 2857 up any further as error rate may increase again.

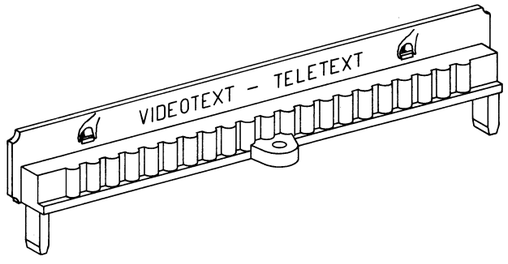
Page 199 must always be selected anew during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.

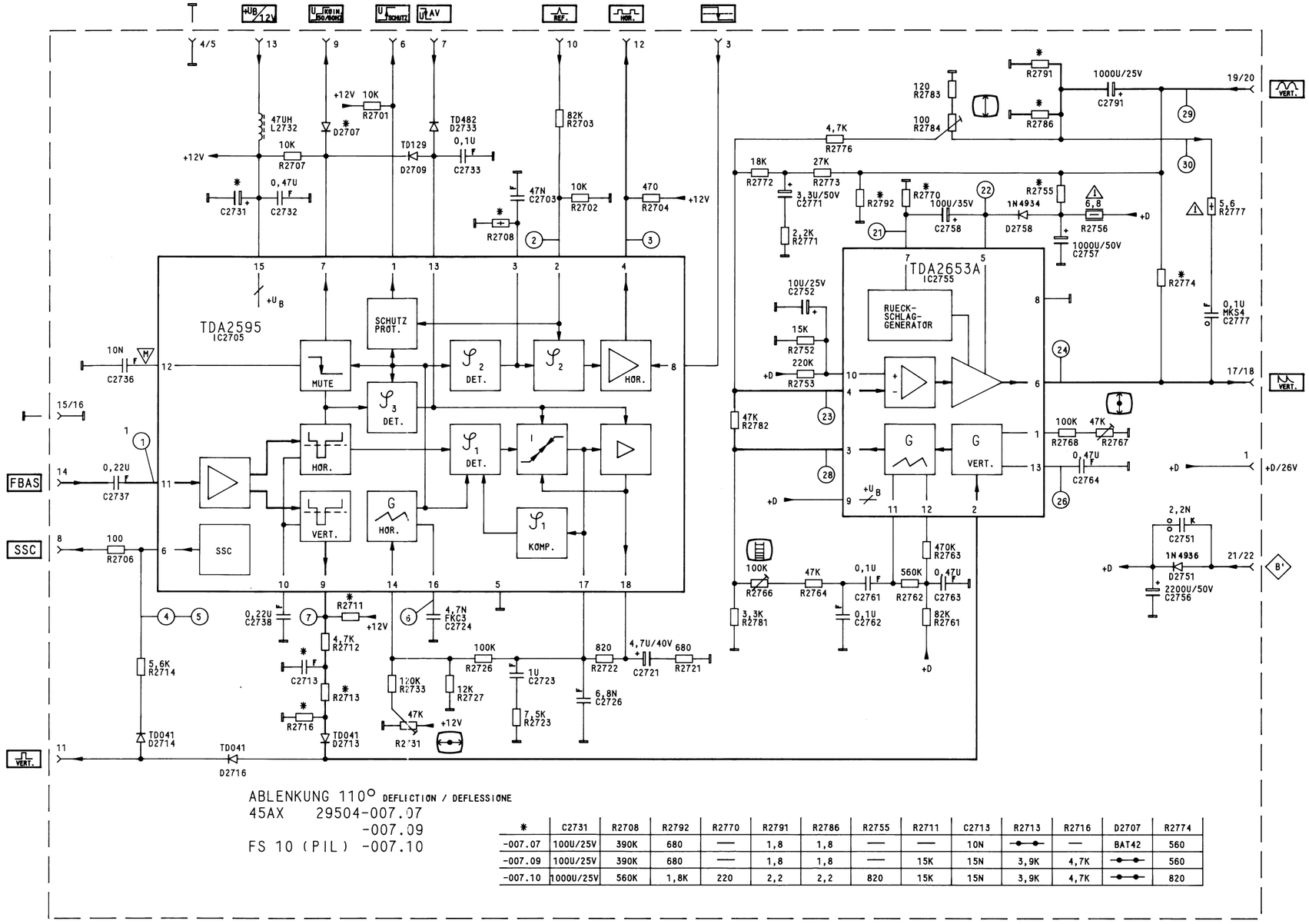
Montaggio e taratura d'adattamento della scheda ad innesto

Nel montare la scheda televideo togliere le resistenze da 1 Ω contrassegnate sui telaio con * oppure la piastrina televideo (* vedere l'illustrazione del telaio nel manuale di servizio).

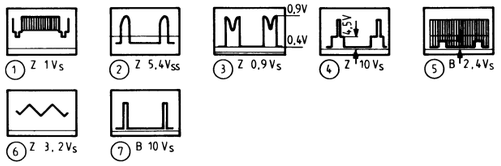
Il regolatore R 2857 viene fornito col cursore girato completamente all'estrema destra (minima esaltazione delle alte frequenze, ca. 2 dB). Se si manifestano errori di carattere, nonostante un perfetto segnale d'antenna, girare lentamente il cursore di R 2857 verso sinistra fino ad eliminare gli errori. Non girarlo oltre può riaumantare la presenza degli errori.

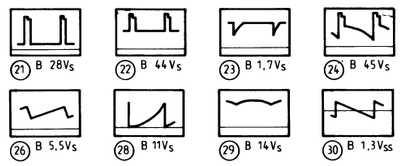
Durante la taratura è necessario selezionare ripetutamente la pagina 199, poiché solo così è possibile una nuova immissione della pagina ed una valutazione della soglia degli errori.

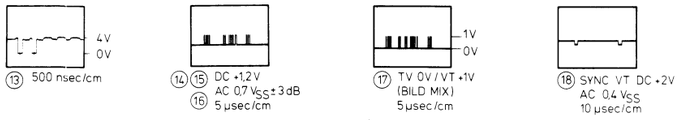


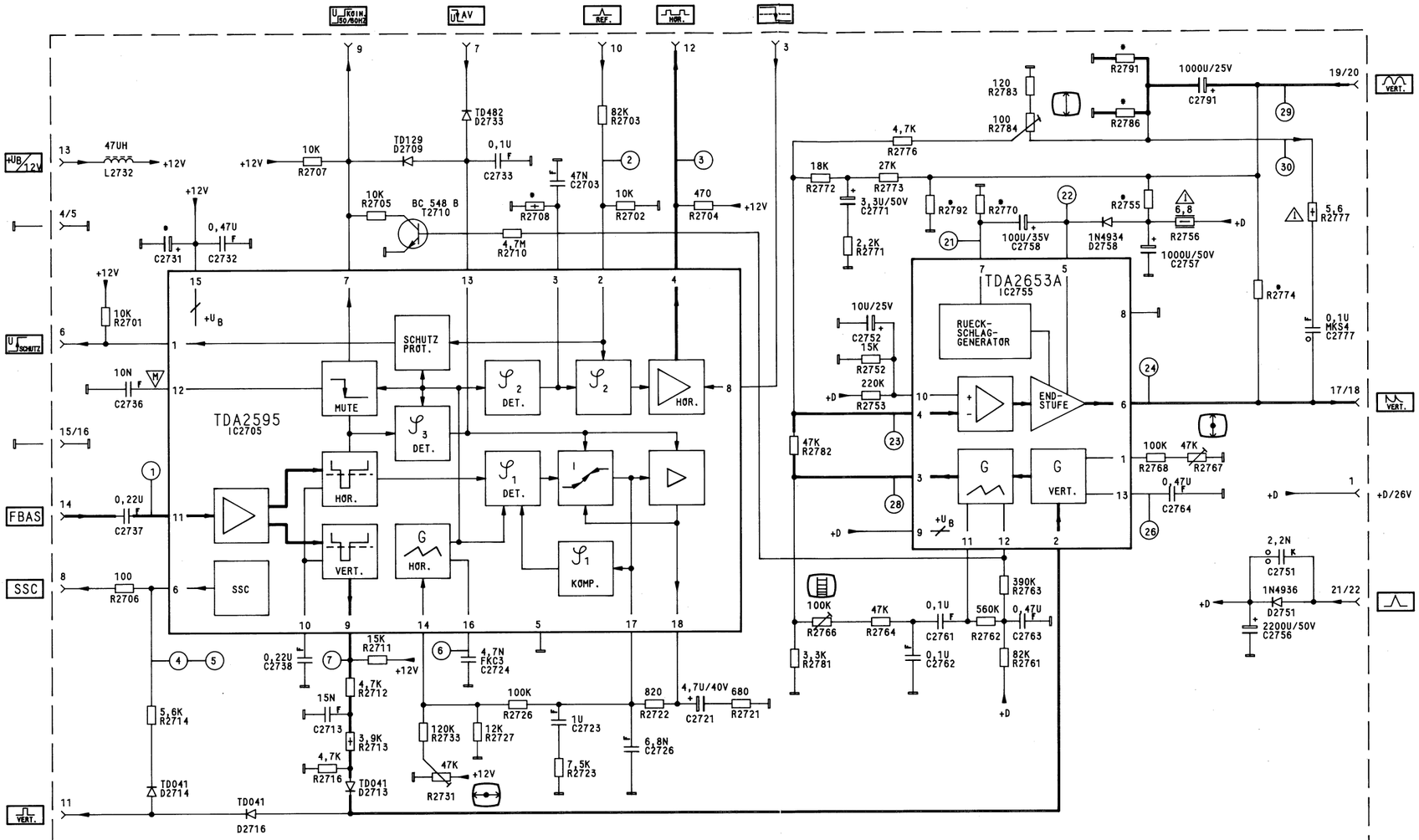


*	C2731	R2708	R2792	R2770	R2791	R2786	R2755	R2711	C2713	R2713	R2716	D2707	R2774
-007.07	100U/25V	390K	680	—	1,8	1,8	—	—	10N	●—●	—	BAT42	560
-007.09	100U/25V	390K	680	—	1,8	1,8	—	15K	15N	3,9K	4,7K	●—●	560
-007.10	1000U/25V	560K	1,8K	220	2,2	2,2	820	15K	15N	3,9K	4,7K	●—●	820

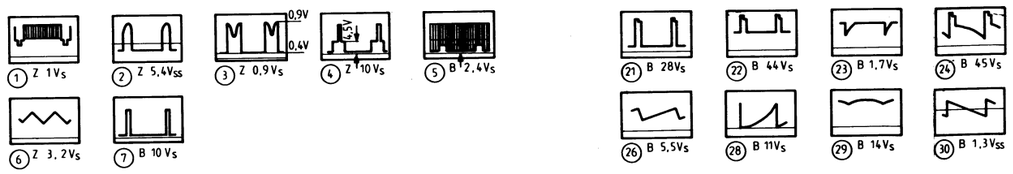








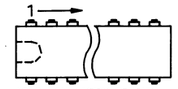
•	R2792	R2755	R2774	C2731	R2770	R2786	R2791	R2708
007.19	680	820	560	100U/25V	-	1,8	1,8	390K
007.20	1,8K	-	820	1000U/25V	220	2,2	2,2	560K



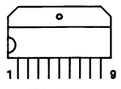
Symbole und ihre Bedeutung
Symbols and their meaning
Simboli e loro significati

P	PROGR.
P1	PROGR. TASTE PROGR. BUTTON TASTO PROGR. TOUCHE PROGR.
M	SPEICHERTASTE MEMORY BUTTON TASTO DI MEMORIA TOUCHE MEMOIRE
NORM	NORMTASTE TV STANDARD SELECT. BUTTON COMMUT. DI NORMA TOUCHE DE NORME
▷▷+	FEINABST. + FINE TUNING + SINT. FINE + REGLAGE FIN +
-◁◁	FEINABST.- FINE TUNING - SINT. FINE - REGLAGE FIN -
I	SUCHLAUF BD I SELF-SEEK BAND I SINT. AUTOM. BANDA I RECHERCHE AUTOM. BANDE I
III	SUCHLAUF BANDWAHL III SELF-SEEK BAND III SINT. AUTOM. BANDA III RECHERCHE AUTOM. BANDE III
UHF	SUCHLAUF UHF SELF-SEEK UHF SINT. AUTOM. UHF RECHERCHE AUTOM. UHF
	LAUTSTAERKE VOLUME VOLUME SONORE
FT	FEINABST. FINE TUNING SINT. FINE REGLAGE FIN
C	KANALWAHL CHANNEL SEL. SELEZ. CANALE SELECT. DE CANAUX
	BALANCE BILANCIAM. BALANCE
	SUCHLAUF SELF-SEEK SINT. AUTOM. RECHERCHE AUTOM.
U I/III	SCHALTSP. BANDWAHL BAND SEL. SWITCHING VOLTAGE TENS. DI COMMUT. SELEZ. BANDA TENS. DE COMMUT. SELECT. BANDE
U VHF	SCHALTSP. VHF SWITCHING VOLT. VHF TENS. DI COMMUT. VHF TENS. DE COMMUT. VHF
U UHF	SCHALTSP. UHF SWITCHING VOLT. UHF TENS. DI COMMUT. UHF TENS. DE COMMUT. UHF
U AFC	SCHALTSP. AFC SWITCHING VOLT. AFC TENS. DI COMMUT. AFC TENS. DE COMMUT. AFC
U AV	SCHALTSP. AV AV SWITCHING VOLT. TENS. DI COMMUT. AV TENS. DE COMMUT. AV
U NORM	SCHALTSP. NORM SWITCHING VOLT. STANDARD TENS. DI COMMUT. NORMA TENS. DE COMMUT. STANDARD
U COINC.	SCHALTSP. KOINZ. SWITCHING VOLT. COINC. TENS. DI COMMUT. COINC. TENS. DE COMMUT. COINC.
U EURO-AV	SCHALTSP. EURO-AV SWITCHING VOLT. EURO-AV TENS. DI COMMUT. EURO-AV TENS. DE COMMUT. NORME FR
U VQ	SCHALTSP. VIDEO QUELLE SWITCHING VOLT. VIDEO SOURCE TENS. DI COMMUT. SORG. VIDEO TENS. DE COMMUT. SOURCE VIDEO
U DATA	SCHALTSP. DATENBETR. SWITCHING VOLT. DATA MODE TENS. DI COMMUT. DATI TENS. DE COMMUT. FONCT. DONNEES
U 4,5 MHZ	SCHALTSP. 4,5 MHZ SWITCHING VOLT. 4,5 MHZ TENS. DI COMMUT. 4,5 MHZ TENS. DE COMMUT. 4,5 MHZ
U τ	REGELSP. VERZOEGERT DELAYED CONTR. VOLTAGE TENS. DI CONTR. RITARD. TENS. DE REGUL. RETARDEE
U TUN.	ABSTIMMSP. TUNER TUNING VOLT. TUNER TENS. DI SINTONIA TUNER TENS. D'ACCORD TUNER
U AFC	REGELSP. AFC AFC CONTROL VOLT. TENS. DI CONTR. AFC TENS. DE REGUL. AFC
U MUTE	STUMMSCHALTUNG MUTING SILENZIAMENTO SILENCIEUX
	TASTIMPULS GATING PULSE IMPULSO A CADENZA IMPULS. DE DECLENCHEMENT
VERT.	VERT. TASTIMPULS VERT. GATING PULSE IMP. A CADENZA VERT. IMP. TRAME
VERT.	VERT. PARABEL VERT. PARABOLA PARABOLA VERT. SIGNAL PARABOLIQUE
VERT.	VERT. SAEGEZAHN VERT. SAW TOOTH DENTE DI SEGA VERT. SIGNAL DENT DE SCIE
HOR.	HOR. ANSTEUERUNG HORIZ. DRIVE PILOTAGGIO ORIZZ. SYNCHR. LIGNES
REF.	REF. IMPULS REFERENCE PULSE IMP. DI RIFER. IMP. DE REFER.
	SCHUTZSCHALTUNG CIRCUIT PROTECTION CIRCUITO DI PROTEZIONE CIRCUIT DE SECURITE
	FARBTON TINT TINTA TEINTE
REF.	REF. LAUTSTAERKE VOLUME REF. VOLT. TENS. DI RIF. VOLUME TENS. DE REF. VOL. SONORE
	HELLIGKEIT BRIGHTNESS LUMINOSITA' LUMINOSITE
	KONTRAST CONTRAST CONTRASTO CONTRASTE
	FARBKONTRAST CONTRAST COLOUR CONTRASTO COLORE CONTRASTE COULEUR
FBAS	FBAS-SIGNAL CCVS SIGNAL SEGNALE SVCC SIGNAL VIDEO COMPOSITE
SSC	SUPERSANDCASTLE
SB	STRAHLSTR. BEGR. BEAM CURRENT LIM. CORRENTE CATODICA MEDIA LIM. COUR. DE FAISCEAU
SSB	SPITZ. STRAHLSTR. BEGR. PEAK BEAM CURRENT LIMITING CORR. CATODICA DI PICCO LIM. DE FAISCEAU CRETE
R	ROT-SIGNAL RED SIGNAL SEGNALE ROSSO SIGNAL ROUGE
G	GRUEN-SIGNAL GREEN SIGNAL SEGNALE VERDE SIGNAL VERT
B	BLAU-SIGNAL BLUE SIGNAL SEGNALE BLU SIGNAL BLEU
Y	Y-SIGNAL SEGNALE Y SIGNAL Y
F	F-SIGNAL CHROMA SIGNAL SEGNALE F SIGNAL CHROMA
SW	SCHWARZWERT BLACK LEVEL LIVELLO DEL NERO NIVEAU DU NOIR
AUDIO	AUDIO-SIGNAL SEGNALE AUDIO SIGNAL AUDIO
AUDIO-L	AUDIO SIGNAL LINKS AUDIO SIGNAL LEFT SEGNALE AUDIO SINISTRA SIGNAL AUDIO GAUCHE
AUDIO-R	AUDIO SIGNAL RECHTS AUDIO SIGNAL RIGHT SEGNALE AUDIO DESTRA SIGNAL AUDIO DROIT
EURO-AV VIDEO	VIDEO SIGNAL EURO-AV SEGNALE VIDEO EURO-AV SIGNAL VIDEO NORME FR
EURO-AV AUDIO-R	AUDIO SIGNAL EURO-AV RECHTS AUDIO SIGNAL EURO-AV RIGHT SEGNALE AUDIO EURO-AV DESTRA SIGNAL AUDIO NORME FR DROIT
EURO-AV AUDIO-L	AUDIO SIGNAL EURO-AV LINKS AUDIO SIGNAL EURO-AV LEFT SEGNALE VIDEO EURO-AV SINISTRA SIGNAL AUDIO NORME FR GAUCHE
IR	IR-SIGNAL SEGNALE IR SIGNAL IR
U G1	SPG. GITTER 1 VOLTAGE GRID 1 TENS. GRIGLIA 1 TENS. GRILLE G1
U FOC.	FOKUSSP. FOCUSSING VOLTAGE TENS. DI FOCALIZZ. TENS. DE FOCALIS.
U H	HOCHSPANNUNG EHT VOLTAGE ALTA TENS. HAUTE TENS.
U SG	SCHIRMGITTERSP. SCREEN-GRID VOLT. TENS. GRIGLIA SCHERMO TENS. GRILLE-ECRAN
TE	TEXT ENABLE
SCL	I^2C-CLOCK
VCL	VCR-CLOCK
ICL	I-BUS-CLOCK
SDA	DATEN DATA DATI DONNEES
ZF	ZF-SIGNAL IF SIGNAL SEGNALE FI SIGNAL FI
PP	PAL PRIORITAET PAL PRIORITY PRIORITA' PAL PRIORITE PAL
F-DIR.	F-SIGNAL DIREKT F SIGNAL DIRECT SEGNALE F DIRETTO SIGNAL CHROMA DIRECT
F_V	FV-SIGNAL FV SIGNAL SEGNALE FV SIGNAL FY
F_U	FU-SIGNAL FU SIGNAL SEGNALE FU SIGNAL FX
F-VERZ	F-SIGNAL VERZOEGERT F SIGNAL DELAYED SEGNALE F RITARD. SIGNAL CHROMA RETARDE
DL	VERZOEGERUNGSLEITUNG DELAY LINE LINEA DI RITARDO LIGNE A RETERD
U SCHUTZ	SCHALTSP./SCHUTZFUNKTION SWITCHING VOLT. /PROTECTIVE FUNCTION TENS. DI COMMUT. /FUNZ.DI PROTEZ. TENS. DE COMMUT. / SECURITE
FBAS SYNC.	FBAS/SYNC.-SIGNAL CCVS/SYNC. SIGNAL SEGNALE SINCR. /VIDEO COL. COMPOSITO SIGNAL SYNC./VIDEO COMPOSITE
SYNC.	SYNC.-SIGNAL SYNC. SIGNAL SEGNALE SINCR. SIGNAL SYNC.
U 50/60 HZ	SCHALTSP. 50/60HZ SWITCHING VOLT.50/60HZ TENS. DI COMMUT. 50/60HZ TENS. DE COMMUT. 50/60HZ
U BTX	SCHALTSP. BTX SWITCHING VOLT. BTX (VIEWDATA) TENS. COMMUT. VIDEOTEL TENS. COMMUT. VIDEOTEXTE
SYNC. VT	SYNC. VT SYNC. VT (TELETEXT) SINCR. TELEVIDEO SYNC. TELETEXTE
SYNC. BTX	SYNC. BTX SYNC. BTX (VIEWDATA) SINCR. VIDEOTEL SYNC. VIDEOTEXTE
U RESET	SCHALTSP. RESET SWITCHING VOLT. RESET TENS. COMMUT. RESET
U STAND BY	SCHALTSP. STAND BY SWITCHING VOLT. STAND BY TENS. COMMUT. STAND BY TENS. COMMUT. VEILLE
U HUB	SCHALTSP. HUB SWITCHING VOLT. DEVIATION TENS. COMMUT. DEVIAZIONE TENS. COMMUT. DEVIATION
U DEEM	SCHALTSP. DEEM SWITCHING VOLT. DEEMPHASIS TENS. COMMUT. DEENFASI TENS. COMMUT. DESACCENT.
U KAM. AV	SCHALTSP. KAMERA WIEDERG. SWITCHING VOLT. CAMERA PLAYBACK TENS. COMMUT. RIPRODUZ. TELECAMERA TENS. COMMUT. REPROD. CAMERA
U LED	SCHALTSP. LED LED SWITCHING VOLT. LED TENS. DI COMMUT. TENS. DE COMMUT. LED
	ZEILENBREITE LINE WIDTH LARGHEZZA DI RIGA AMPLITUDE HORIZONTALE
	OST / WEST AMPLITUDE EAST / WEST AMPLITUDE AMPIEZZA EST / OVEST AMPLITUDE EST / OUEST
	HOR. LINEARITAET HORIZ. LINEARITY LINEAR. ORIZZ. LINEAR. HORIZONT.
	BILDLAGE HOR. HORIZ. PICTURE POSITION POSIZIONE ORIZZ. D'IMMAGINE CADRAGE HORIZONT.
	FOKUSREGLER FOCUS CONTROL REGOLAT. DI FOCALIZZ. REGLAGE DE FOCALISATION
	BILDLAGE VERT. VERT. PICTURE POSITION POSIZ. VERT. D'IMMAGINE CADRAGE VERTICAL
	BILDAMPLITUDE FIELD AMPLITUDE AMPIEZZA D'IMMAGINE AMPLITUDE VERTICALE
	TRAPEZ TRAPEZIUM TRAPEZIO TRAPEZE
	HOR. FREQUENZ HOR. FREQUENCY FREQ. ORIZZ. FREQ. HORIZ.
	VERT. FREQUENZ VERT. FREQUENCY FREQ. VERT.
	VERT. LINEARITAET VERT. LINEARITY LINEAR. VERT. LINEAR. VERT.
	OST/WEST SYMMETRIE EAST/WEST SYMMETRY SIMMETRIA EST/OVEST SYMMETRIE EST/OUEST

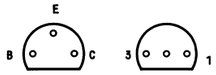
Wichtige Schaltzeichen
Important circuit simbols
Segni circuitali importanti



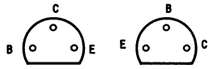
IC'S VON UNTEN GESEHEN
IC'S SEEN FROM BOTTOM
IC'S VISTI DI SOTTO
IC'S VUS DU DESSOUS



TDA 4601

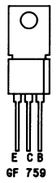


BF 199 | 78 L05 CP

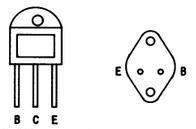


BF 421 / BF 422
BC 637 / BF 423

BC 548 / BC 558
BC 337/25
PN 2222
BC 338 / BC 324
BF 414
BC 308 / BC 248
BC 547

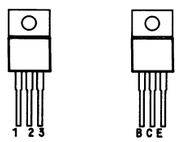


GF 759



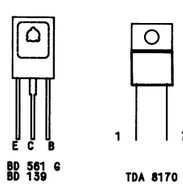
BU 508A / BU 903
BU 508D / BU 908

BU 208A
BU 546



TY 40164 / MC 7505
MC78 MOSCT
7812

BD 561G
BU 908
BU 903
S 668T
BUT 11A
BUT 56A



BD 561 G
BD 139

TDA 8170

3/4W	0617 DIN
1/10W	0204 DIN
1/4W	0207 DIN
1/2W	0411 DIN
1W	0411 DIN
2W	0617 DIN
4W	0922 DIN

WIDERSTAND NICHT BRENNBAR
RESISTOR NOT FLAMMABLE
RESISTENZA NON INFIAMMABILE
RESISTANCE ININFLAMMABLE

DRAHTWIDERSTAND
WIRE RESISTOR
RESISTENZA A FILO
RESISTANCE BOBINEE

SICHERUNGSWIDERSTAND
SAFETY RESISTOR
RESISTENZA DI SICUREZZA
RESISTANCE DISJONCTABLE

KONDENSATOR
CAPACITOR
CONDENSATORE
CONDENSATEUR

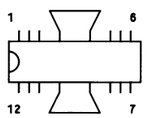
250V~
400V~
630V~
1000V~

FOLIE
FOIL
A FOGLIA
FOLIO PLASTIQUE

KERAMIK
CERAMIC
CERAMICO
CERAMIQUE

ELKO
ELECTROLYTIC
ELETTROLITICO
ELECTROLYTIQUE

TDA 2653A



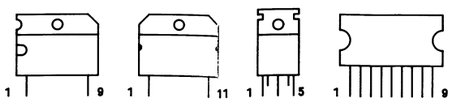
TDA 2655B

⚠ BEI ERSATZ AUS SICHERHEITSGRUENDEN NUR ORIGINALBAUTEILE VERWENDEN.
FOR REASONS OF SAFETY USE ORIGINAL PARTS ONLY WHEN REPLACING.
IN CASO DI SOSTITUZIONE UTILIZZARE PER RAGIONI DI SICUREZZA SOLAMENTE PEZZI DI RICAMBIO ORIGINALI.
EN CAS DE REMPLACEMENT N'UTILISER, POUR DES RAISONS DE SECURITE, QUE DES PIECES D'ORIGINE.

BEI EINGRIFFEN SCHUTZMASSNAHMEN FUER MOS-BAUTEILE BEACHTEN!
WHEN HANDLING MOS-CIRCUITS, ALWAYS OBSERVE THE MOS PROTECTION MEASURES!
ADOPERANDO COMPONENTI O CIRCUITI MOS OSSERVARNE LE CORRISPONDENTI MISURE DI PROTEZIONE!
LORS DE LA MANIPULATION DES CIRCUITS MOS, RESPECTER LES PRESCRIPTIONS MOS!

STECKERUNTERTEIL ZAEHLRICHTUNG
PLUG BOTTOM PART COUNTING DIRECTION
PARTE INFER. SPINA DIREZ. CONTEGGIO
SENS COMPTAGE PARTIE INFER. CONNECTEUR

LOETSEITE
SOLDER SIDE
LATO SALDATURE
COTE SOUDURE



TDA 4935 | DL 60292 | TDA 2040 | TDA 3654 / TDA 3653A

SOT 143

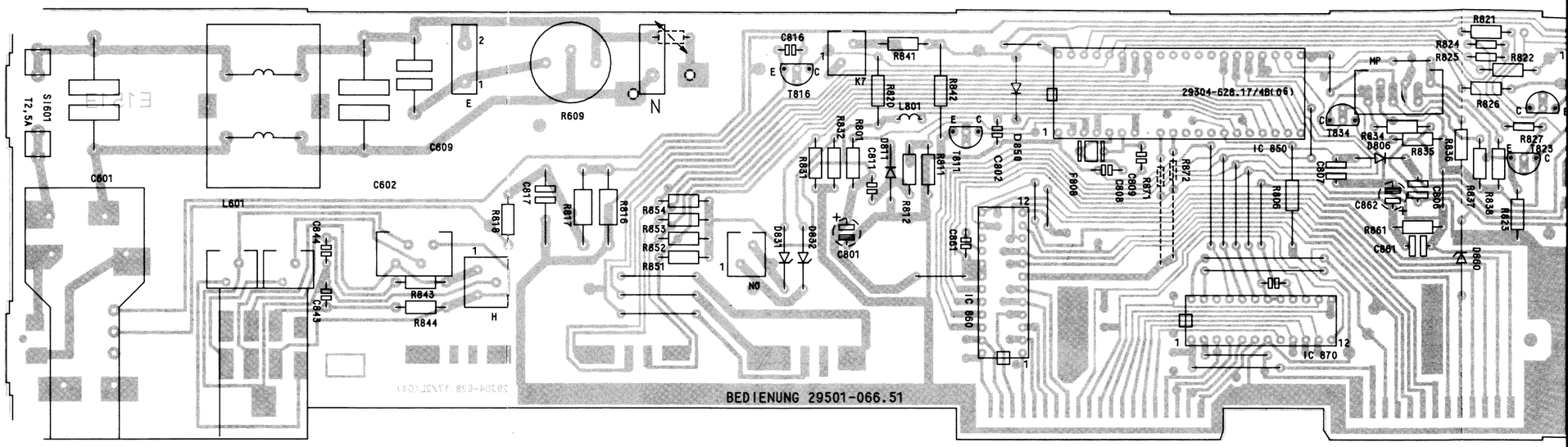
BF 994
BF 996

SOT 23

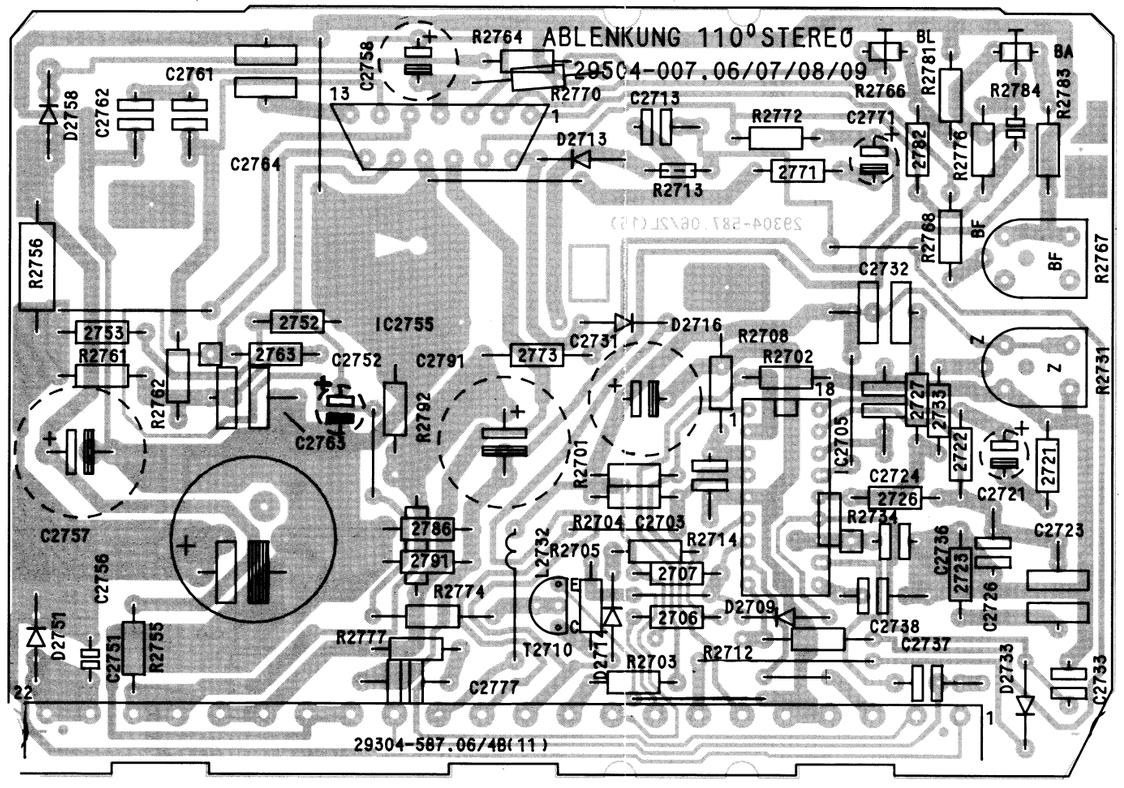
BF 569
BF 579

BC 847
BC 858

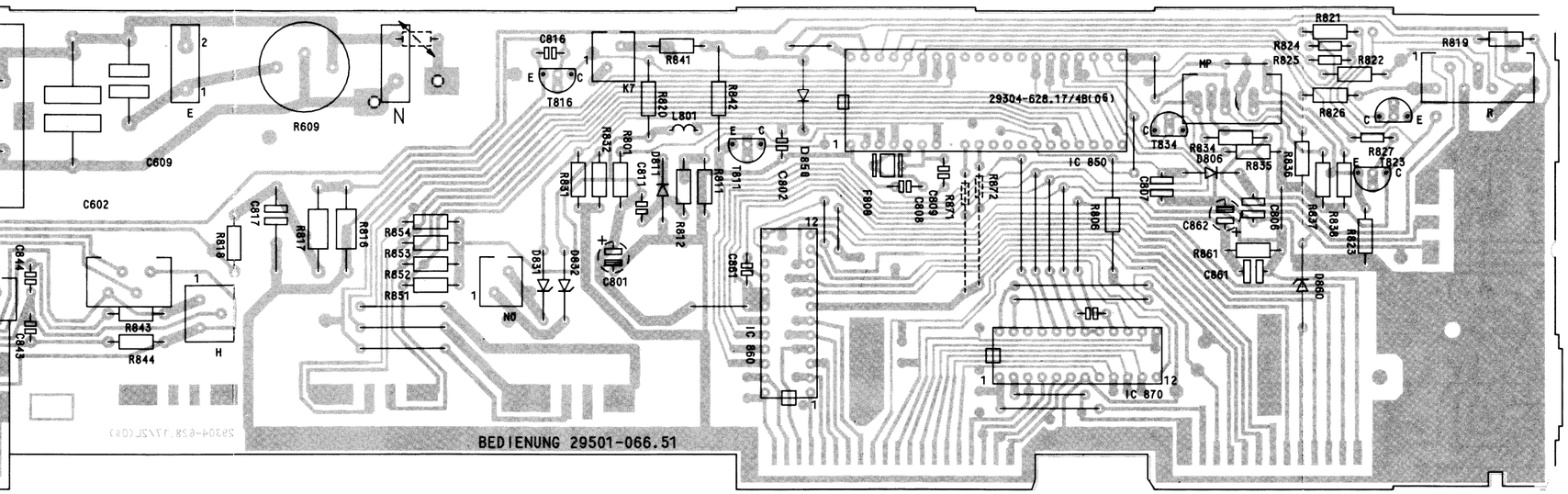
Bedieneinheit 75 4547

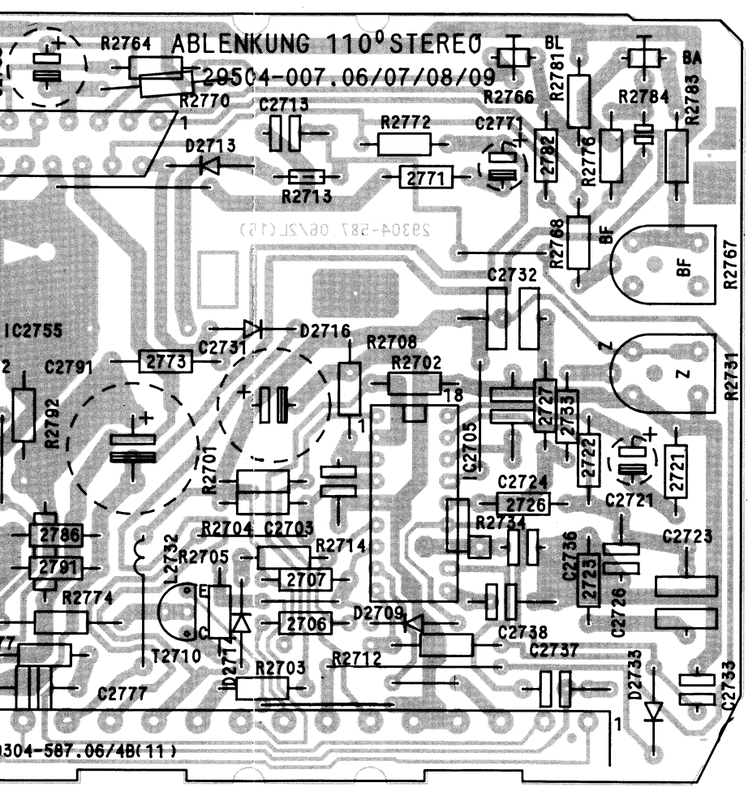


Ablenkung 75 4228

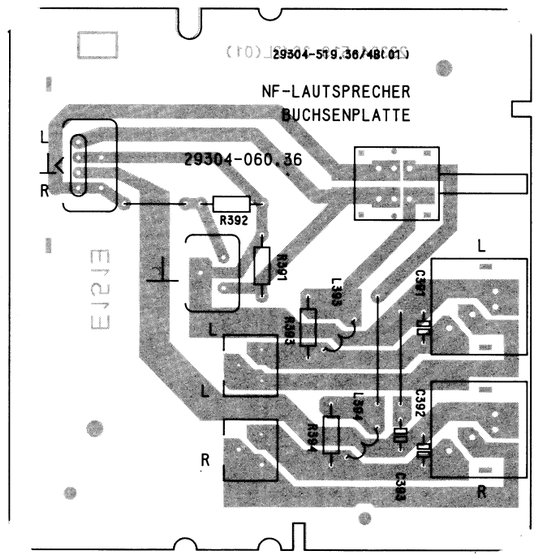


Buchs

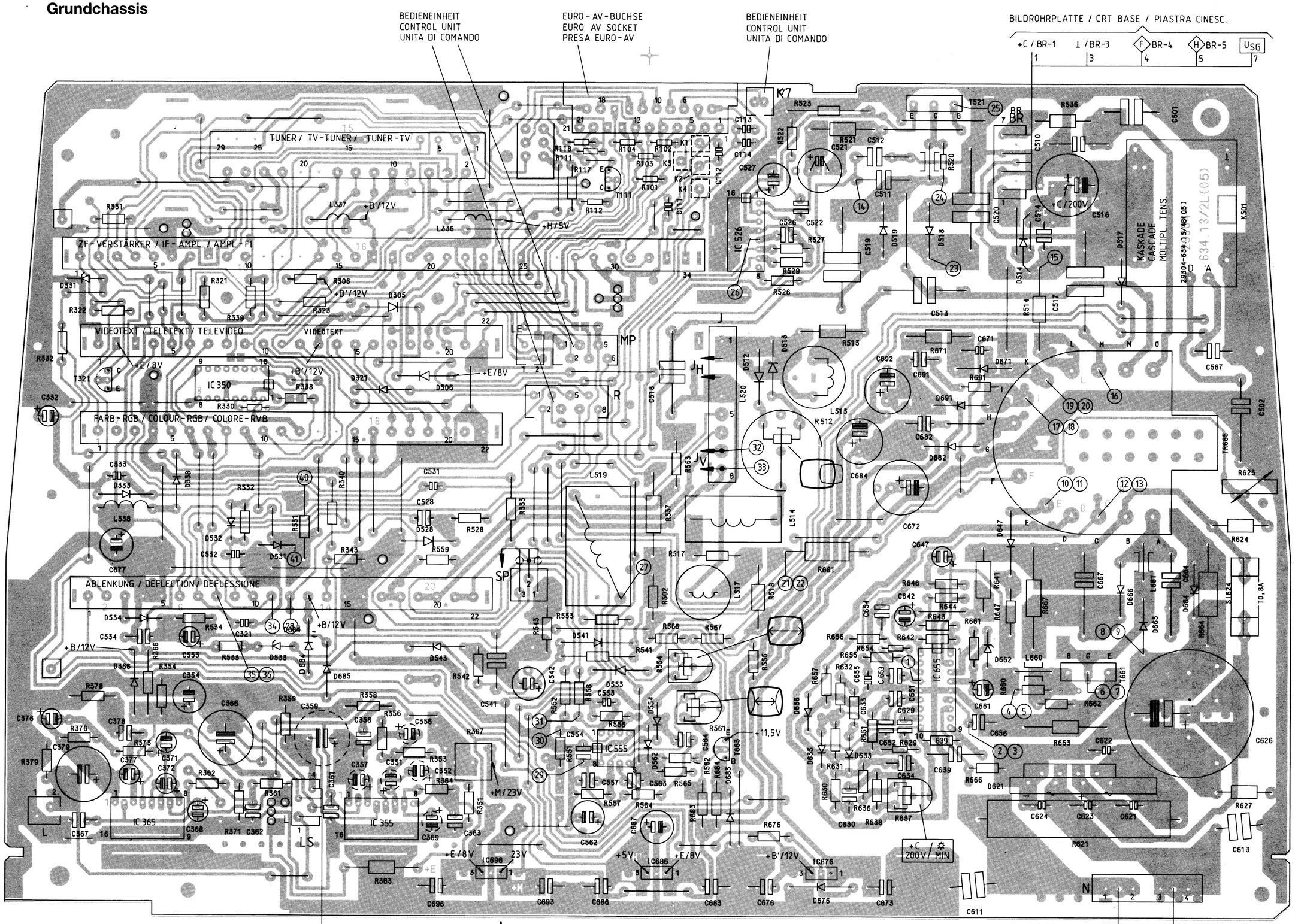


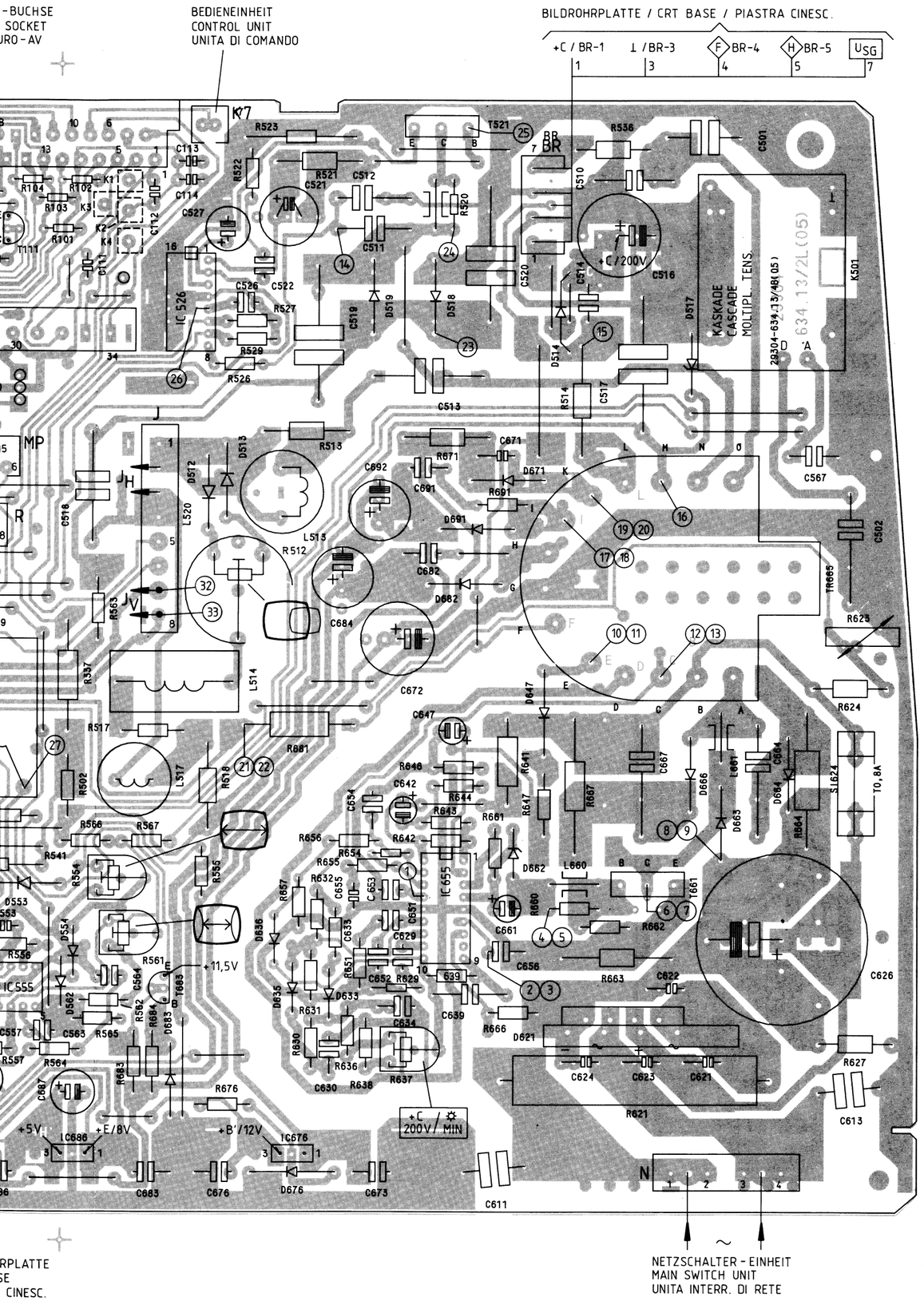


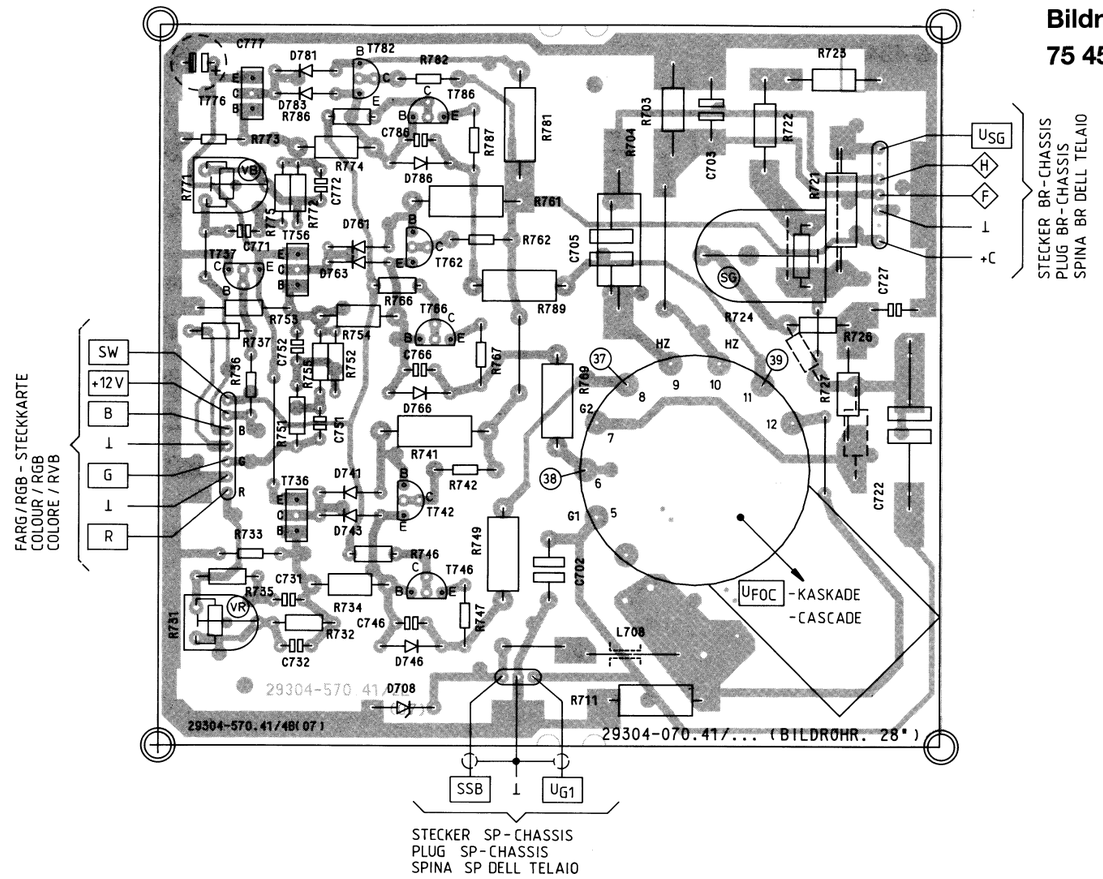
Buchsen-Platine

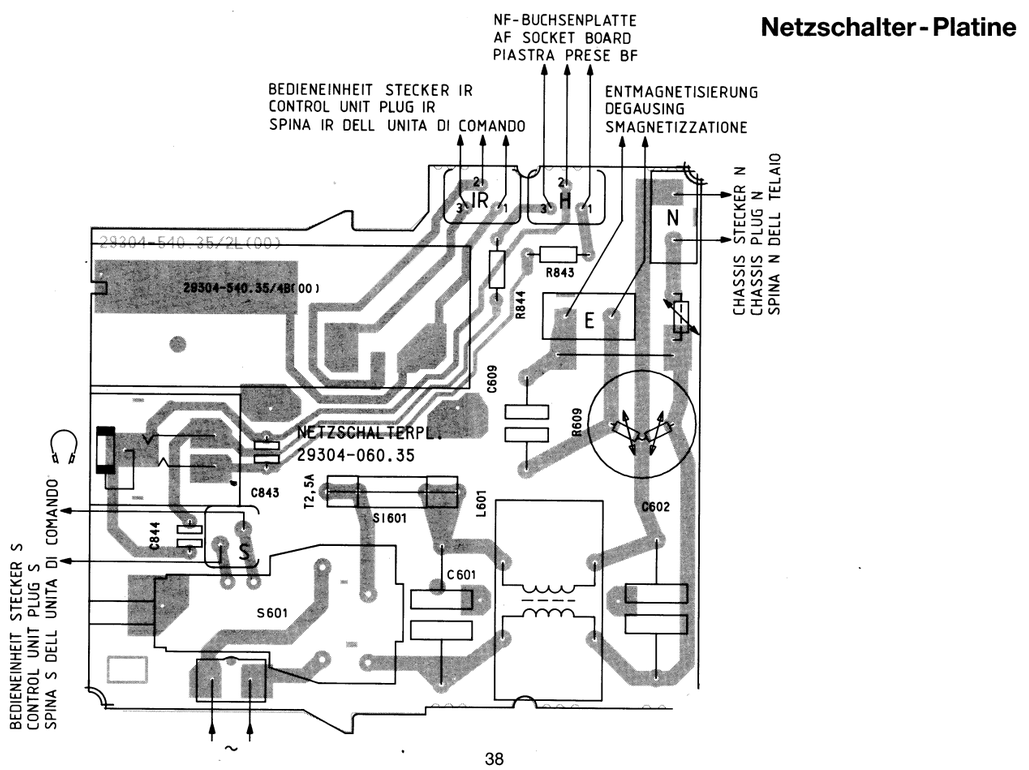


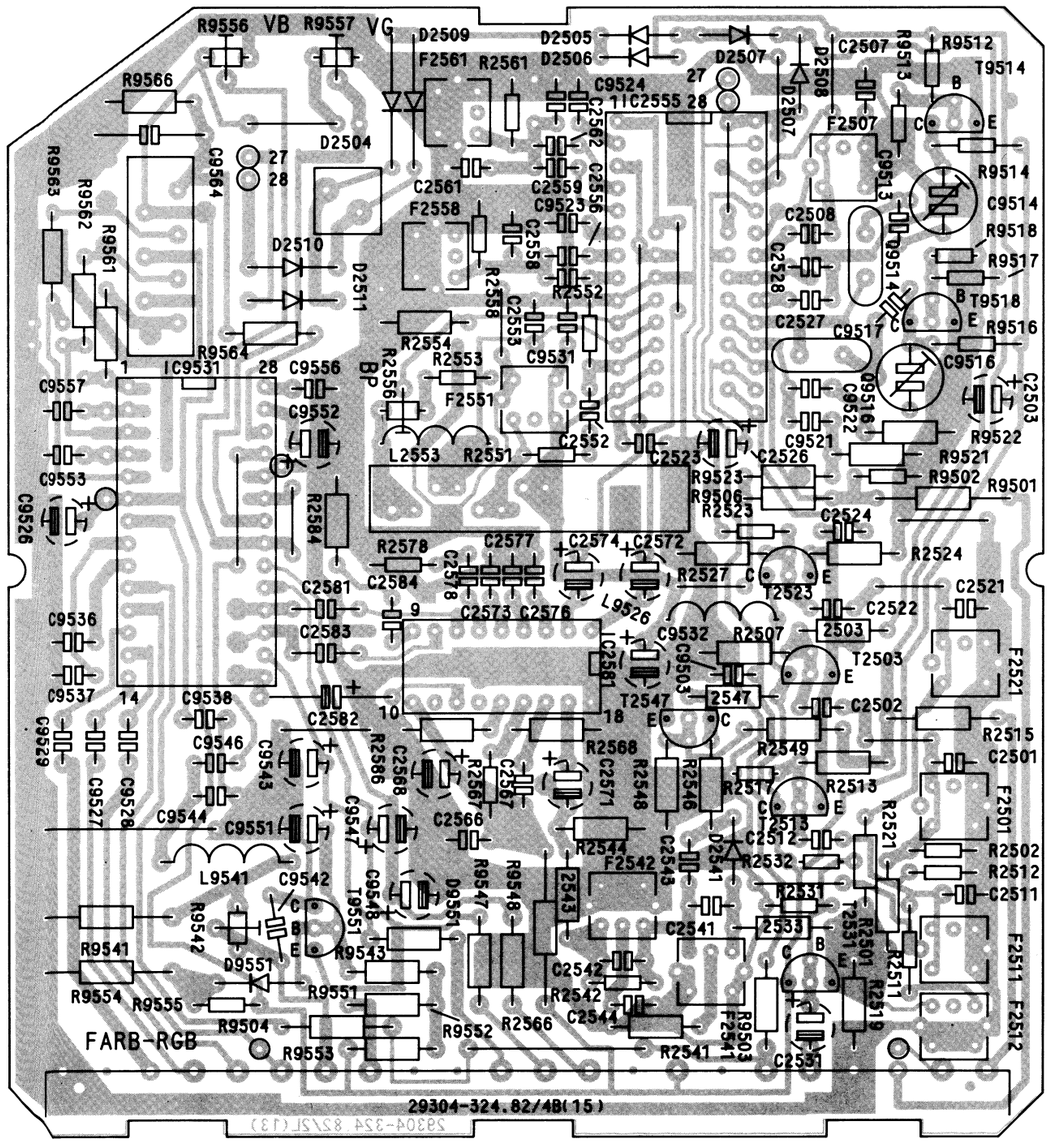
Grundchassis

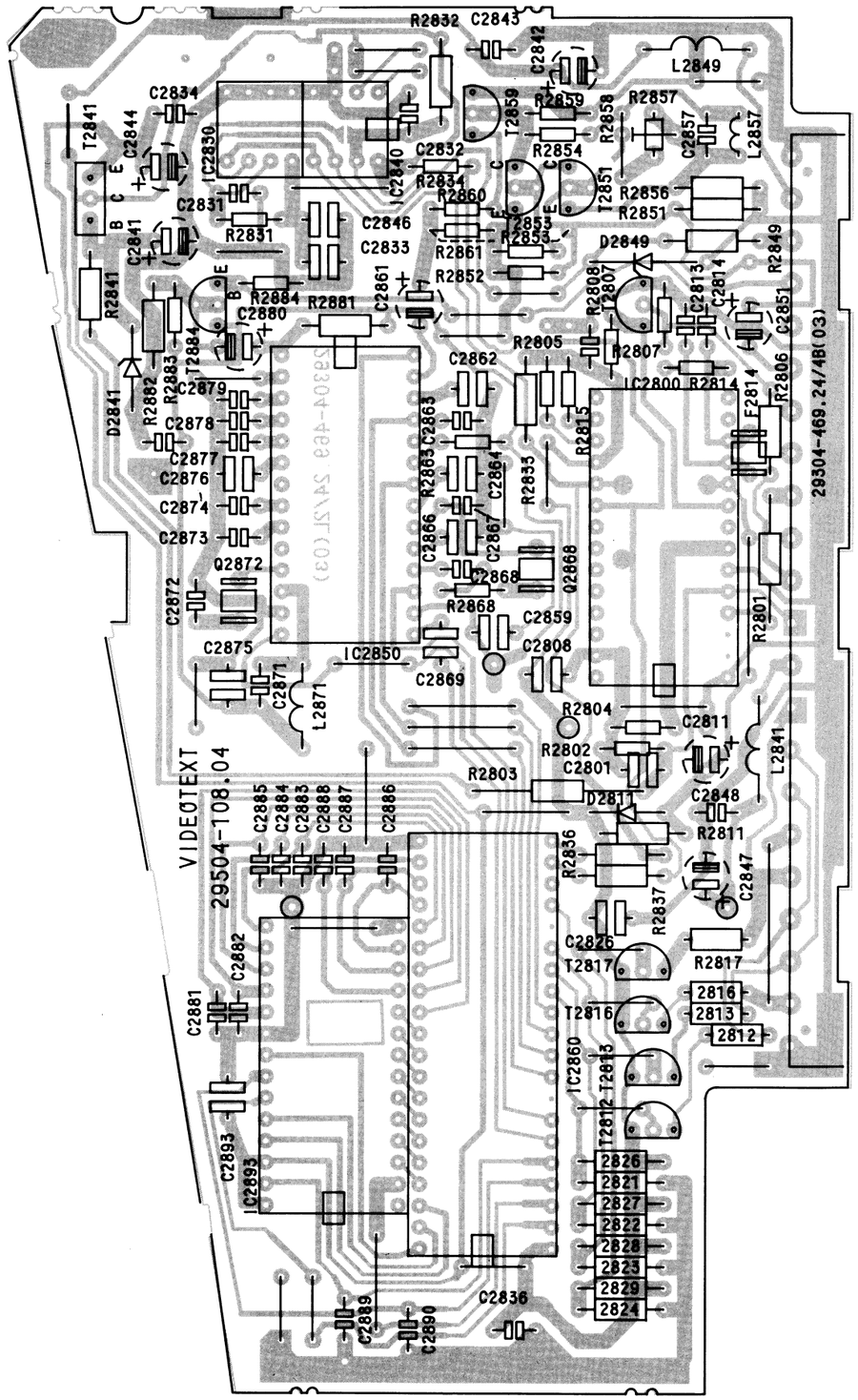



-BUCHSE
SOCKET
URO-AV
BEDIENEINHEIT
CONTROL UNIT
UNITA DI COMANDO
BILDROHRPLATTE / CRT BASE / PIASTRA CINESC.
+C / BR-1
⊥ /BR-3
F BR-4
H BR-5
USG
1
3
4
5
7
K7
BR
IC 526
+C / 200V
C516
KASKADE
CASCADE
MOLTIPL. TENS.
29304-634.13/2L(05)
634.13/2L(05) D A
MP
JH
JV
L513
L514
L520
IC555
+11,5V
+5V
IC686
+E/8V
+B'/12V
IC676
+C
200V / MIN
N
NETZSCHALTER - EINHEIT
MAIN SWITCH UNIT
UNITA INTERR. DI RETE
RPLATTE
SE
CINESC.

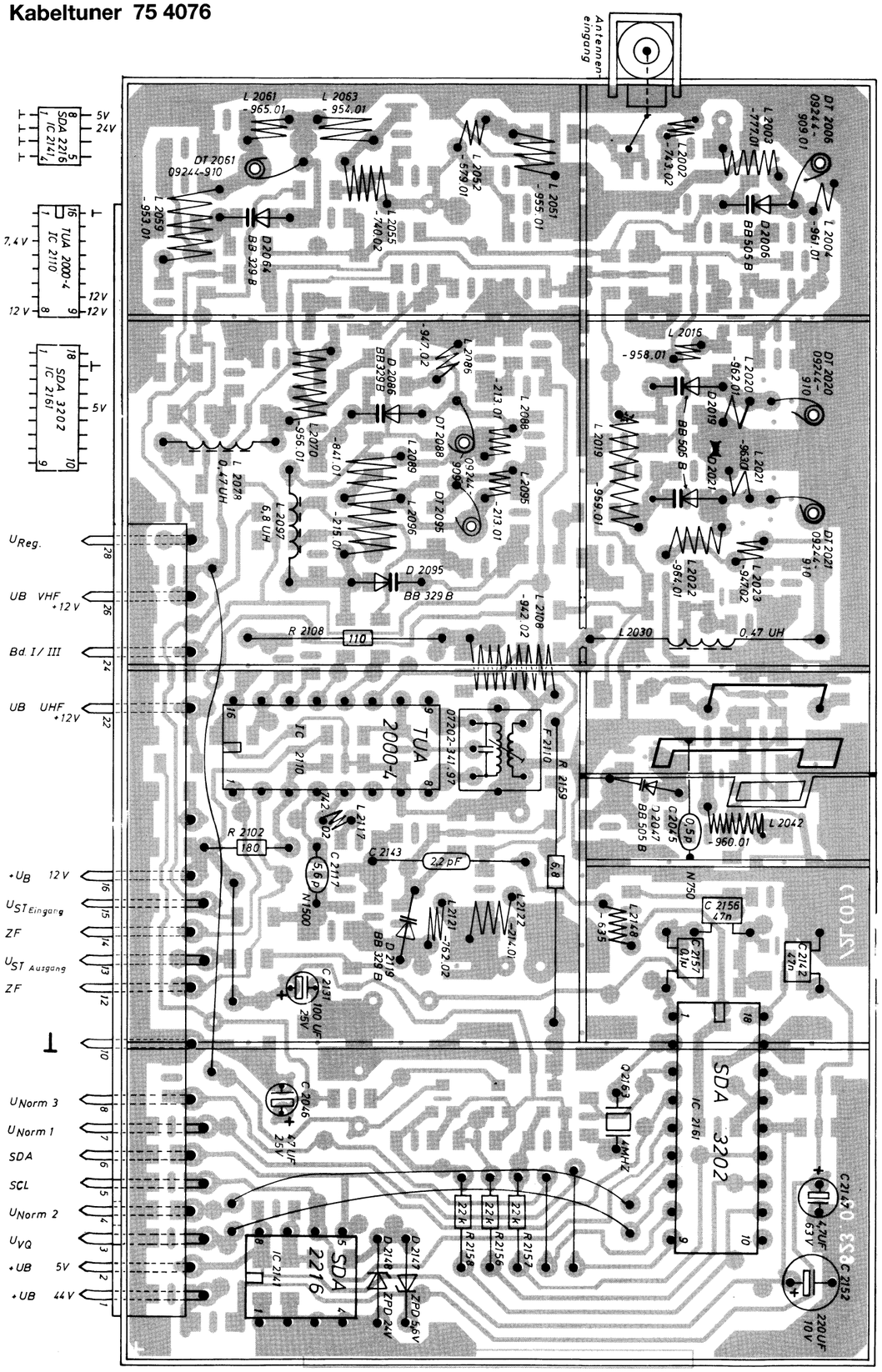

Bildrohr-Platine
75 4550
SW
+12V
B
⊥
G
⊥
R
FARG/RGB-STECKKARTE
COLOUR/RGB
COLORE/RVB
USG
H
F
⊥
+C
STECKER BR-CHASSIS
PLUG BR-CHASSIS
SPINA BR DELL TELAIO
UFOC -KASKADE
-CASCADE
29304-570.41/4B(07)
29304-070.417... (BILDROHR. 28")
SSB
⊥
UG1
STECKER SP-CHASSIS
PLUG SP-CHASSIS
SPINA SP DELL TELAIO


Netzschalter-Platine
NF-BUCHSENPLATTE
AF SOCKET BOARD
PIASTRA PRESE BF
BEDIENEINHEIT STECKER IR
CONTROL UNIT PLUG IR
SPINA IR DELL UNITA DI COMANDO
ENTMAGNETISIERUNG
DEGAUSING
SMAGNETIZZATIONE
CHASSIS STECKER N
CHASSIS PLUG N
SPINA N DELL TELAIO
29304-540.35/2L(00)
NETZSCHALTERPL.
29304-060.35
BEDIENEINHEIT STECKER S
CONTROL UNIT PLUG S
SPINA S DELL UNITA DI COMANDO


FARB-RGB
29304-324.82/4B(15)


VIDEOTEXT
29504-108.04
29304-469.24/4B(03)

Kabeltuner 75 4076



ZF-Stereo 75 4072